Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

VOLUME 6.] NEW-YORK, AUGUST 16, 1851. [NUMBER 48.

THE
Scientific American,
CIRCULATION 16,000.
PUBLISHED WEEKLY
At 128 Fulton, street, N. Y., (Sun Building,) and 13 Court street, Boston, Mass.
BY MUNN & COMPANY,
The Principal Office being at New York.
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Rail-Road News.

For the Scientific American.

Ohio and Indiana Railroad.

The increasing demand for a good eastern connection from the once "far west," with the cities of New York and Philadelphia, the necessity of which has been very severely felt, both in the East and West, has been the means of impressing upon the citizens of this section of Ohio and North Eastern Indiana, the immediate necessity of constructing a railroad from Fort Wayne, Indiana, to Crest Line, the Western terminus of the Ohio and Pennsylvania Railroad. After obtaining a liberal charter, the citizens of Crawford, Wyandot, Allen, and Van Wert Counties, Ohio, and Allen Co., Indiana, subscribed liberally to the stock of the company, which, with the county stock along the line, now amounts to $475,000, leaving a balance of $50,000 necessary to grade and bridge the road, which will be, no doubt, early subscribed. The benefits of this road will be immense, opening to New York and Philadelphia a wealthy country, which is entirely without any direct communication with the East. The road will be about 132 miles long, a great portion of which is now located, and the directors expect to let the whole road early this fall. The easy gradients, and curvature, with its very long straight lines, and the remarkable cheapness of its construction, will place it as a No. 1 railroad not only in transit but in money making. J. H. S.

Bucyrus, Ohio.

Novel Life-Preserver for Railroads.

A. C. Castil, M. D, offers a suggestion through the New York Tribune, for an invention to save the lives of persons coming in the way of a railroad locomotive. He proposes that diverging strong iron rods in the form of the horizontal letter V be attached to the cow-catcher, projecting forward from both sides of the grating. That the lower rods shall not be more than eight or ten inches above the track. That a strong but very yielding gum elastic band, three inches wide, be attached to, and extended across to each lower rod. That the upper rods shall be but half the length of the lower ones, and from the lower to the upper rods shall be secured a hollow gum elastic bag, its surface occupying the space of the whole width of the locomotive, thus in the form of letters ⊳C(⊲ represents the rods attached to the cow-catcher and C attached to the rods, represents the hollow sack for catching the human object.

[The best plan, in our opinion, to prevent the accidents spoken of, is to have the tracks fenced in and plenty of guards on the route. The sack would present a great resisting surface to the progress of the engine. The above plan, however, can be easily tried, and thus its utility may be easily solved. We go for experiments in testing the merits of inventions.

BRONSON'S IMPROVEMENTS IN SAWING FRAMES.

Figure 1.

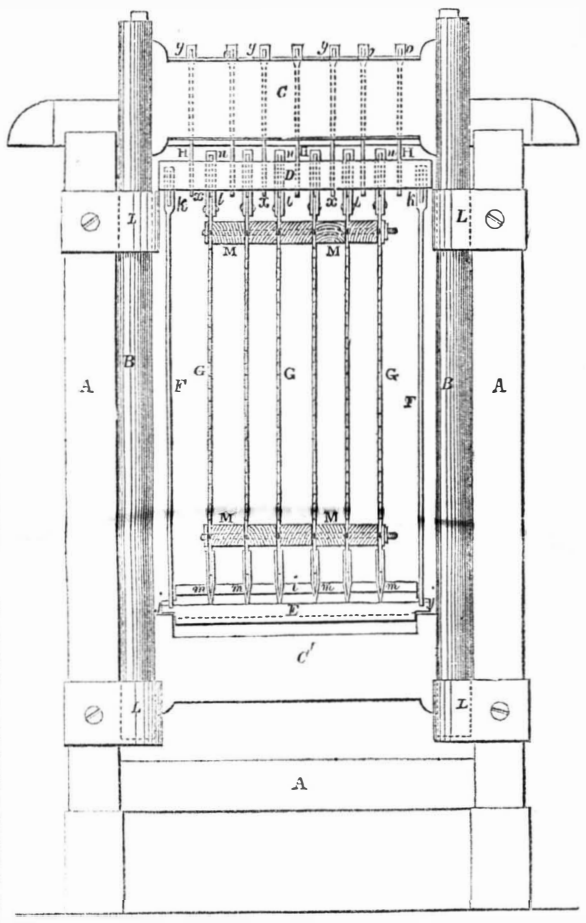
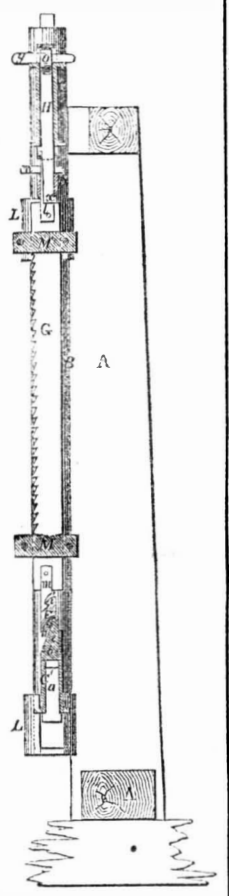
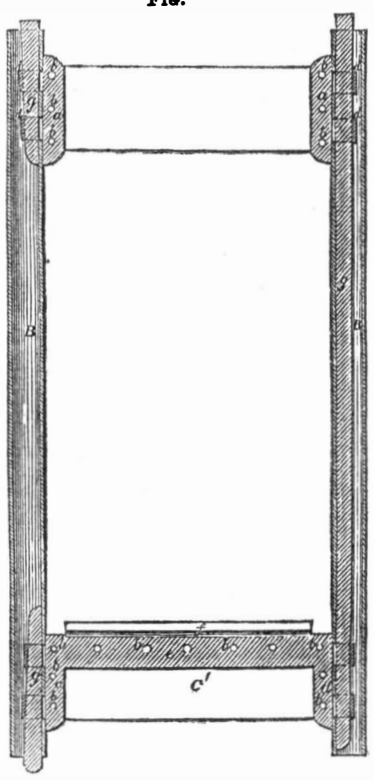


Figure 2.



The accompanying engravings represent improvements in Saw Frames, invented by Mr. William C. Bronson, of Erwin, Steuben Co., N. Y., who has taken measures to secure a patent for the same. Figure 1 is a front elevation of part of a saw mill; figure 2 is a vertical section, taken transversely to figure 1. Figure 3 is a vertical section of the saw frame. Figure 4 is a horizontal section of the saw frame taken at the top. The same letters refer to like parts.

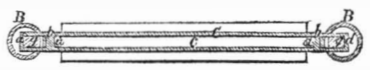
FIG.



The improvements consist in the construction of the frames, whereby great strength is combined with lightness, and it can be easily taken to pieces and put together so as to render it portable. A false frame is also provided, by which a gang of any number of saws can be hung independent of the main frame, so that the whole or any of the saws can be quickly removed, for the purpose of sharpening or setting, and another gang put into the main frame without stopping the mill but for a few minutes. The mode of hanging the false frame is also new.

A A represents part of the mill framing in which the main saw frame, B B and C C′, is hung. B B are two wrought-iron tubes of suitable length to form the sides of the saw frame; C C′ are two cross-stretchers of wrought plate iron. The upper stretcher, C, is double as seen in figure 4, the two sides having a space, *c*, between, are kept apart by blocks, *a a*; these blocks are secured by rivets, *b b*, figs. 3 and 4. The ends outside the blocks are formed into loop tenons, *d d*, which are fitted into the tubes, B B. The stretcher, C′, is double the same as the upper one, but the two sides have the filling pieces united by a piece, *e*, fig. 3, extending from the two ends and standing above the sides, tapering and forming a tongue, *f*. It also has loop tennons, *d d*, fitting into the tubes, B B. The filling pieces at the ends, between the two sides of the stretchers, fit close to the tubes, and the stretchers and tubes are secured by keys, *g g*, of wood or metal, fitting into the loops and the tenons within the tubes. These keys may be rods extending the entire length of the tubes, or one rod for every end of a stretcher. The keys are slightly tapered to draw the tennons and loops together. The tubular sides of the frames fit into suitable guide boxes, L L, in the frame, A. D E F F

FIG. 4.



is what is termed the minor or auxiliary frame. D is the cross-head formed of double wrought-iron plates, with an opening between, but united at the ends. E is a cross-tail formed of a wrought-iron bar, having a V shaped recess along its back, forming, with the tongue on the lower stretcher, C′, a lappet—the projection of the one fitting into the recess of the other. On the front side, the upper part, *i*, of the cross-tail, E, is of single plate doubled over, forming a hooked rim. The extremities, *j j*, of this cross-tail are narrower than the rest of it, and the upper edge is tapering. F F are two flat metal side bars, with notches on their lower ends, fitting snugly over the tapering edges, *j j*, of the cross-tail; these bars have their upper ends of a narrow loop form, fitting into the slot of the cross-head, D, and extending a little below it of a wider form, like shoulders for the cross-head to rest on. *k k* are keys passing through the loops below the cross-head. The cross-head and cross-tail are held together by the saws, but kept at a proper distance apart and parallel by the rods F F.

G G are they saws, the have metal straps, *l l*, attached to their upper ends, the said straps passing through the slot or opening between the sides of the cross-head, D. *m m* are hooks attached to their lower ends, which catch into and hook with the doubled-over rim of the plate, *i*. The saws are tightened by wedge keys, *n n*, passing through the straps, *l l*, above the cross-head. M M are blocks of wood placed between the saws to keep them at a suitable distance apart. H H are suspension rods passing through the slot, *c*, of the upper stretcher, C. The upper ends are loops, and their lower ends, *x x*, have T heads extending across the slot and supporting the plates of the cross-head, D. *y y* are keys passing through the loops above the stretcher, thus securing and tightening the minor or auxiliary saw frame within the main frame.

The saws are properly hung in the auxiliary frame, and set ready for use before being put into the main frame. The auxiliary frame is put into the main frame with great facility by hooking *h* and *f* together, as represented by figure 2, inserting the suspension rods and then keying them up with the wedges, *y y*. The whole of the saw frame including the main frame, &c., is rendered quite portable for transportation, &c. The main frame can be taken apart by drawing the keying rods, *g g*, and the auxiliary frame by drawing the keys, *n n* or *k h*. They can both be put together in a few minutes, fit for any reciprocating mill, without any preparation, as it requires no guides or fence posts to be fixed for it. Its own sides form the guides; the boxes, L L, have merely to be fixed to the mill framing. It will be understood that the auxiliary is the saw frame, but the *main* and auxiliary are terms to distinguish the two. It is intended to employ two minor or auxiliary saw frames in every mill, so as to keep one gang of saws always in readiness, and thus replace the gang which requires to be sharpened, &c. The stoppage for this purpose will be only for a few minutes. In connection with this Mr. Bronson has also an improved method of hanging the saws direct in the main frame.

More information about this useful improvement may be obtained of the inventor by letter, addressed to him as directed above.

Protecting River Banks.

The Brunswicker, of Missouri, advises the people of that place to protect the banks from the encroachments of the Mississippi by dyking. This is right—and the sooner they go about the business so much the better: "a stitch in time saves nine. A good plan of dyking is to drive down two rows of piles with a space of about 10 feet between, filling that in with brush, and sinking it with heavy stones. This is also a good plan of making firm roads through swamps.

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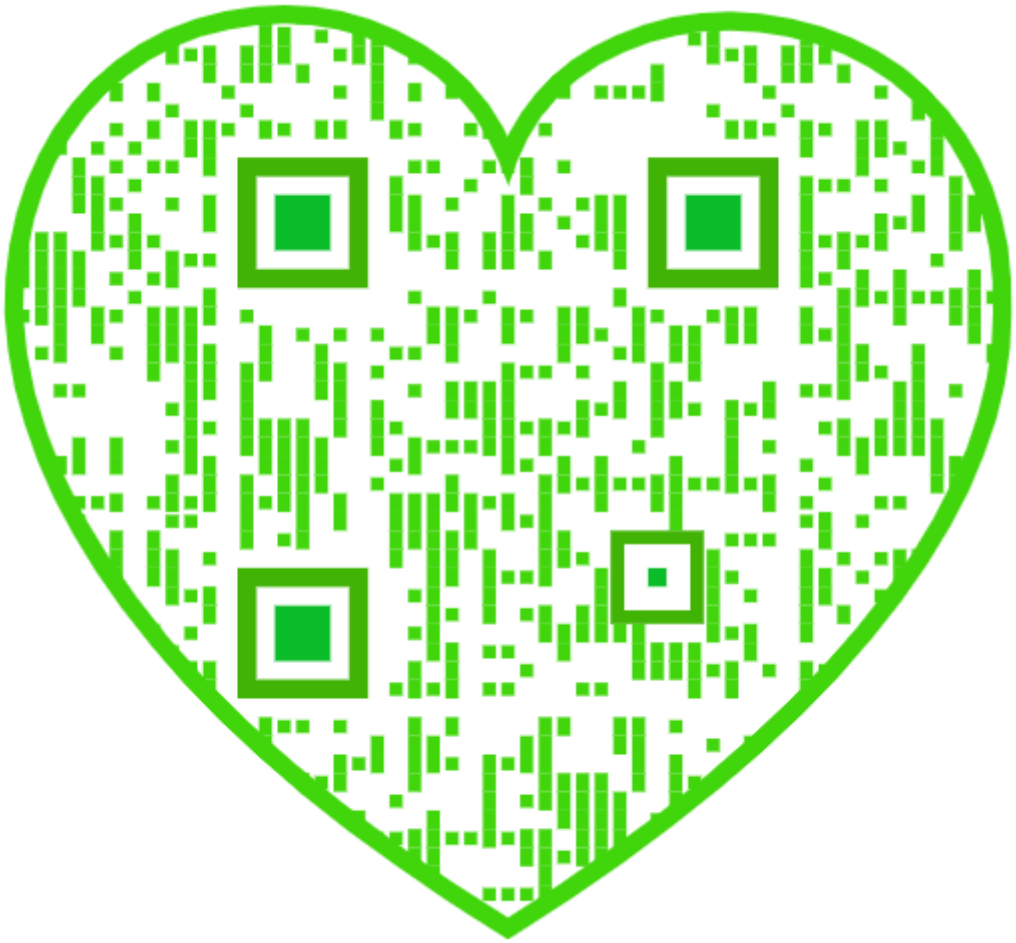

Miscellaneous.

Special Correspondence of the Scientific American
Facts, On Dits, and Matters Connected with the Crystal Palace.

LONDON, July 28th 1851.

Her Majesty the Queen has been very industrious the past week, in examining thedepositesi with a view of making purchases, and the result of her investigations has been quite gratifying to the exhibition. The Prince Consort, too, with his characteristic liberality, has purchased a number of valuables from the different nations, either as presents to his royal lady or his noble children. The Queen has purchased the brooch exhibited with the Queen of Spain's gems, also a magnificent bracelet set with diamonds, valued at five hundred guineas, from an English jeweller. Among otther articles purchased is the statue of Andromeda, some Paisley shawls, Spitalfield's rainbow silk of a peculiar quality; a splendid chandelier from France, a variety of bronze castings from France, a pair of splendidly cut crystal candelabra, a pair of large stock vases worth $2,500; for the royal children, two cages of mechanical singing birds, similar to those exhibited in the French collection, and a lot of Turkish towelling, which has a plush-like face on both sides, which, it is said, gives it an absorbing power. As yet the Prince has made no purchases in the American department,,but, as the saying goes, we fancy he has "got his eye" on one or two articles which may grace Buckingham Palace yet. We shall see.

We must not omit to mention here the interest universally created among the visitors of all nations, by the salamander safes deposited by Silas C. Herring, of New York. The metal of the safe consists of the stoutest and toughest wrought bar and plate iron, the space between the inner and outer surfaces being filled with a composition, of which plaster of Paris is the principal ingredient. Several attempts have been made here to burn this safe, but after laying in the fire for forty hours, *red-hot*, the contents came out uninjured. The experiments were highly satisfactory, and we quite agree with an eminent English journal, which says, "Herring's Salamander Safes" are the most durable and essentially fire-proof in the Exhibition. This is one point gained in the American department, at least, which the coldest Englishman freely admits.

Lord Campbell, in the House of Lords, has repudiated the idea of retaining the Crystal Palace as a winter garden. He quoted from a writer in the "Quarterly Review," who said, "were the Crystal Palace to be kept up in spite of rather strong pledges, and as some prophecy, to present us by and by with a wilderness of walks meandering through bowers of exotic bloom, it would be the most insalubrious promenade in London." And again: 'If ever our odorable house of glass becomes a strong, steaming, suffocating *jardin d'hiver*, it will be a capital thing for the apothecaries: such a vigorous crop of coughs, colds, and consumption will be raised that it will be the walk if not the dance of death to frequent it." His lordship seemed to be of the opinion that it had better be coverted into an enormous shower-bath, as during a rain it was almost impossible now to walk through it without getting drenched to the skin. We think his lordship is slightly in error in this respect, as an umbrella entirely does away with this emergency; it is quite clear there is some lurking prejudice in his mind. Mr. Paxton has addressed his lordship a letter, correcting the misapprehensions under which he appears to labor respecting the stability and suitableness of the Palace to be retained as a permanent building.

The Royal Commissioners and Executive Committee of the Exhibition, partook of a dinner on the 12th, on board the steamship Atlantic, Capt. West, at Liverpool, per invitation of W. Brown, Esq., the member of the House of Commons for South Lancashire. Mr. Brown is represented as a kind, charitable, worthy member of society, and his affair passed off with much eclat and satisfaction. The chair was occupied by the worthyhost himself and the vice-chair by Capt. West, the commander of the ship, who is unquestionably the most popular captain that sails across the Atlantic ocean—a position he has won by his uniform courtesy, kindness, and integrity of heart.

Among the guests were Earl Granville, M. Zohrab, the Turkish Commissioner, Mr. Rowland Hill, Mr. Locke, Member of Parliament, Mayor of Liverpool, Mr. Cole, M. P., and other gentleman of distinction. After the usual loyal toasts, the chairman proposed the "President of the United States," and "begged to associate therewith the name of Mr. Davis, the Charge d'Affairs for that country. Mr. Davis, in acknowledging the honor done to the President of his country and to himself, could have wished that the task had devolved on some one higher in the diplomatic circle. They had been told that the products of America were meagre in the Crystal Palace, but let those who said so come and look at Liverpool —let them look into thedocks and warehouses, as the Royal Commissioners had done that day —let them see what produce there was from America, and the ships floating on the Mersey under her flag, and they would behold what the descendants of Englishmen had done in so short a time, and what vast obstacles they must have encountered and overcome since they separated from the mother country." In conclusion he thanked Mr. Brown for proposing the health of the President while sitting under the American flag, and the company for the handsome manner in which they had received the toast.

Earl Granville, who responded to a toast of the American Commissioners, among other things said, "Mr. Davis had reminded them that they were under the American flag; he might say that they were meeting in the middle of Liverpool on American ground. It was a subject of rejoicing that this occasion had given Mr. Davis the opportunity of making those happy expressions of opinion in regard to the two nations which they had just heard." After the dinner the company separated and about nine hundred of them passed a most agreeable evening at the Town Hall, by invitation of the worthy Mayor, John Bent, Esq., who is one of the most popular and efficient officers that Liverpool ever had.

In regard to the juries, the subject of the award of prizes has at last assumed a more definite and favorable aspect. The Times says, "We rejoice to hear that the system organized for determining the awards begins to act more harmoniously, and that there is every prospect, at last, of a satisfactory escape from those broils and contentions in which, but a few days ago, the conduct of some foreign jurors threatened to involve us." H. H. P.

The Inventor of Railways.

Mr. Richard Lovell Edgeworth, an English gentleman and an author, has published an "Essay on Railroads," of which he claims the invention. He states that in 1768 he presented models to the Society of Arts, for which he received their gold medal. He recommends an experiment to be made which shall demonstrate their advantages beyond the possibility of doubt or cavil. He proposes four iron railways to be laid on one of the great roads out of London, two of them for carts and waggons, and two for light carriages. To accommodate coaches and chaises he would have cradles or platforms, with wheels adapted to the railway, on to one of which each carriage would drive up an inclined plane erected at the end of the road for that purpose. The carriage would then be drawn, not upon its own wheels, but upon the wheels of the platform or cradle. He calculates that a stage coach, with six inside and six outside passengers, would travel at the rate of six miles an hour with one horse. Gentlemens' carriages, with two horses, would go at the late of twelve or fifteen miles an hour; and, if a railway were laid from London to Edinburgh, the mail coach would go in thirty hours. Even at this great speed the most timid female might trust her delicate frame with most perfect security, for the carriage could not possibly be overturned. Any obstruction from hills would be easily overcome. Mr. Edgeworth proposed to plant a steam-engine at the top of every hill, which would move forward the carriage by a chain, which they would be connected to or detached from at pleasure.

The above is from the Leeds Mercury of Aug. 21, 1802.

Diamond Slab.

Dr. Berk recently read a paper before the British association 'On a Diamond Slab supposed to be cut from the Koh-i-Noor,' of which we find the following brief notice in the London Athenæum:—

"It appears that, in 1832, the Persian army of Abbas Meerza for the subjugation of Khorassan found, on the capture of Coocha, among the jewels of the harem of Reeza Kooli Khan, a large diamond slab, supposed to have been cut from the Koh-i-noor; it weighed 20 carats, and showed the marks of cutting on the flat or largest side. The only account that could be obtained of it was the statement that it was found in the possession of a poor man, a native of Khorassan, and that it had been employed in his family for the purpose of striking a light against a steel; and in this rough service it had sustained injury by constant use. The diamond was presented by the Prince of Persia to his father, Futteh Ali Shah. The Armenian jewellers of Tehren asked the sum of 20,000 tomauns, (about £16,000 sterling) for cutting it; but the Shah was not disposed to incur the expense. These particulars had been forwarded to Dr. Berk by his brother, Mr. W. G. Beke, late colonel of engineers in the Persian service and Khorassan campaign."

The Telegraph in Europe.

Mr. Faxton (Telegraph proprietor) thus writes from Europe:

"Telegraphs in England are mostly built on the railroads, and in some instances a railroad company will build a telegraph line and give the use of it to a company, and as an equivalent, the telegraph lends its aid to expedite the business of the railroad. The telegraph company between London and Liverpool gets £1,000 a year for doing the business of the railroad company, and the railroad people afford them all facilities for repairing the line, even so far as sending an extra engine, without charge, when there is not a regular train going out soon; and every man employed on the railroad is under instructions to report immediately to the nearest telegraph office anything he may find to be out of order on the line, in fact, a line of telegraph is almost considered an indispensable part of the equipage of all well-regulated railroads in England. The press of England use the telegraph but little, and pay heavily for what they do get by it. The London Times pays £1,000 a year for a certain amount daily, and in addition, they pay for all extra communications of importance.

The telegraph in France is also a different thing. It is under the control of government officers, and all the government business is done by signals, understood only by those who are in the pay of the government. There is another method of telegraphing by an instrument invented by a M. Brequet, called the Printing Telegraph, but very different from House's.

Electricity.

It has now become very well known that the electric fluid pervades all nature, and that its properties are in many respects analogous to those of light and heat. It is probably identical also with the attraction of gravitation, and some have even supposed that it is one and the same thing with the vital principle. Electricity and magnetism are also one, and the opinion that it is the one universal force, of which all others are merely modifications, is rapidly gaining ground. The velocity with which the electric current travels along metallic wire is prodigious. Further observations may probably show that light and electricity are altogether identical

The electric fluid pervades all matter, all bodies, and all space. The earth is full of it —some objects, such as metals, being better retainers of it than others. Some human beings are fuller of it than others, and possess he property of giving off sparks of electricit when in particular states of health. Many animals are highly electric—the cat, when rubbed before a fire, becomes an elrctric machine, and there are fishes and eels which communicate a smart elelctric shock when touched. They often use it to stun their prey or defend themselves against an attack.

Extension of Steam between Glasgow and New-York.

In addition to the influential company lately formed for establishing a line of steamships between Glasgow and New York, and whose fine steamer, the Glasgow, of 1,850 tons and 400 horse power, is fast approaching completion, in the former city, we learn that another screw-steamer, of somewhat smaller dimensions, being about 1,400 tons register and 300 horse power, is now in course of construction at Dumbarton, intended for the same trade. This vessel is expected to be ready to take her berth about the 19th March, 1852. The public will soon have no lack of steam accommodation between the Clyde and Hudson, as monthly sailings will thus be at once insured.

Chemical Freezing Agents.

In the hotbed of wonders, the chemist's laboratory, great degrees of cold are procurable by using highly volatile liquids for evaporation. A man may be frozen to death, it is said, in the extremest heat of summer, simply by keeping himself drenched with ether. By the assistance of liquid sulphuric acid, water may be frozen in a red hot vessel. But that remarkable substance, liquid carbonic acid, takes the highest rank of all known freezing agents. In drawing it from the powerful reservoirs in which it is necessarily kept, it evaporates so rapidly as to freeze itself, and is then a light porous mass, like snow. If a small quantity of this is drenched with ether, the degree of cold produced is even more intolerable to the touch than boiling water—a drop or two of the mixture producing blisters, just as if the skin had been burned.

The Secret of Taming Birds.

We have no direct means, says Wm. Kidd, in the Gardeners Chronicle, of divining the "why and because" of certain predilections, and prejudices, observable in birds and other animals. We daily see actions among them for which we cannot in any way account. Thus, for instance, if a dog enters a room full of company, you shall presently observe him make a careful tower of the apartment, sniffing first at one and then at another of the assembled guests. Towards some, his tail will be seen to wag with every symptom of kindliness and good-will; whilst towards oththers, he will, with tail deflected, show unmistakeable signs of suspicion, perhaps of disgust. Depend upon it, the animal's discernment is rarrly at fault. I would willingly be guided by such a mentor. Just so is it with the feathered race. Some masters and mistresses can never get them to be on terms of intimacy. The cause is evident. There are no feelings of affection in common between them. They do not love their birds. The latter know as much; and are assuredly aware that they are kept simply for the sake of furnishing amusement. I have noticed the same unerring sagacity with all my squirrels. They would instantly detect any person who might be preparing, or wishing, to play them off some practical joke, and would, to my great delight, fasten on them at once—paying handsomely, and in full, for all favours "about to be" received. It was, however, impossible for me to anger them. They too well knew the friendliness of my disposition—seeing what merry romps and gambols we had together both by day and night; up stairs, down stairs, and in the garden. No doubt it was a wise provision of Nature thus to endow our little friends with instinctive powers of deception. The face is the index of the mind. They read our characters when they catch our eye.

The Lawrence Courier speaks in high terms of the locomotives manufactured at the Essex Works in that city. The Erie Railway Company have ordered some of these fine engines; when this order is filled up, the locomotives on this road will number 200.

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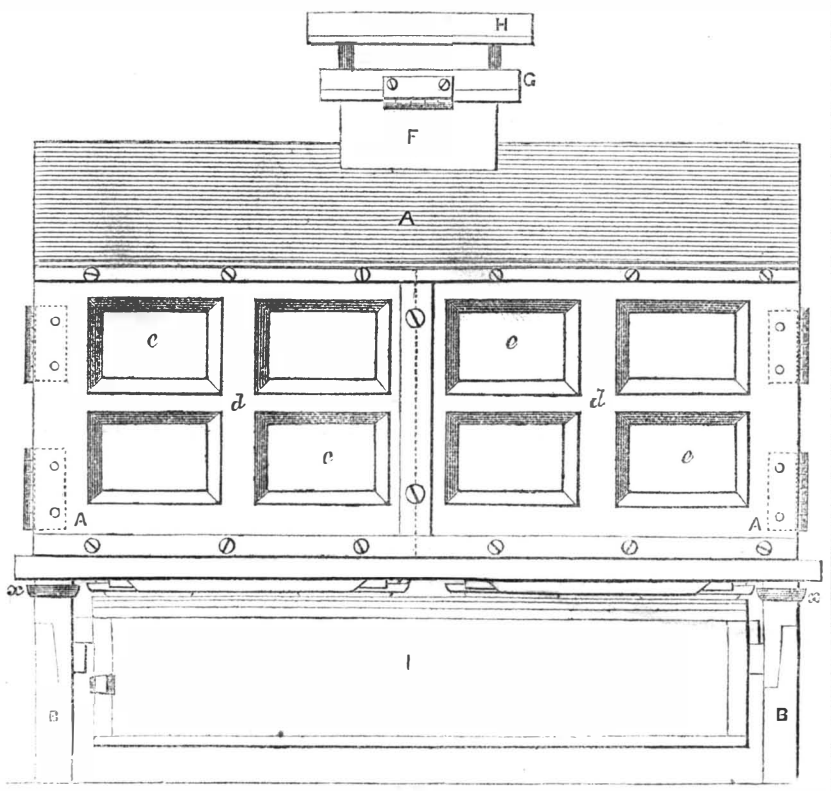
Hindoo Mechanics and Artizans.

The Hindoos do their work in such a different manner from the American and Englishman that he almost appears to be a person belonging to a different order of beings. Our blacksmith stands at work, the Hindoo squats with his knees nearly on a level with his chin; it is the same with their carpenters and madons, their posture is suggestive of indolence and effeminacy. They appear to be defective in the muscular power of their limbs, and the blacksmith hammers away squatted like a kangaroo on its haunches. They go barefoot, and if they do not use their feet to stand upon while they work, they make more use of their toes than we Anglo Saxons. The Hindoo blacksmith, when he has a piece of iron to file, places it between the jaws of a small pair of tongs, and grasping them firmly between his great toes, files away with great force. He also sometimes uses his toes to reach forth and grasp a tool, the same as we do our fingers, and so accustomed are they to use their toes, that they sometimes adorn them with gold rings, they being as worthy of such honors as our fingers. Time does not seem to be valued by the Oriental; his tools and method of working appear to be contrived for the very purpose of consuming as much time as possible. The mason works with a trowel about the size of one of our tablespoons, and a small hammer about half a pound weight. He squats before his work, and has two women attendants to bring him his bricks and mortar. These attend, the one with a brick in each hand, the other with a truncheon of mortar about the size of a breakfast plate. One American mason, with one hod carrier, will lay as much brick as twelve Hindoos, with their twenty-four female *rundees*, or brick and mortar attendants. An English engineer, sent out to finish some government works, and having occasion to run up some embankments in a short time, made an attempt to introduce the wheel-barrow as a substitute for the basket with which they carry the earth on the head; he got a number made, and to encourage them he filled his barrow full and wheeled the first one himself. He invited the stoutest of his gang to try the next; the poor fellow stepped along a few paces, then staggered, tumbled, and fell, with his barrow. He then filled it half full, and it was wheeled along. He then left for half an hour, and when he returned he found four men at the barrow, two at the head and two at the feet, bearing it along as solemn as if it were a funeral bier. He thought the failure was owing to the barrows being too large, and he had a number made about the same size as those with which our boys amuse themselves. He thought, from their smallness, he never would catch four men carrying one again. These small barrows went well, the Hindoos trundled them along with great glee, and the work, to the joy of the engineer, appeared to go on rapidly, but for all, after a short time, he found that no more earth was excavated than by the baskets. This puzzled him, but having gone from the gang for some time, he returned abruptly and discovered the reason, for he found the Hindoos marching up the plank with the greatest possible gravity, each carrying his wheelbarrow on his head—legs in front and wheel behind.

This engineer, in giving an account of the first steam engine which was seen there, says, that when he was consulting the drawings with dividers, and making calculations with a piece of charcoal to put all the parts together, the Brahmins and grand-bearded Mussulmen looked on with open mouths as if he was going through some conjuring process. After he got the engine put together and steam up, one evening about dusk, by the light of two flaming torches he could see eyes looking curiously through the windows, and the engine house was crowded. In a moment the safety-valve suddenly opened, and what a screaming and yelling and running there was, and every one was filled with terror. At last the huge fly-wheel spun round, the walking beam moved up and down, the pumps clanked, the steam snorted, and many came back with their terror changed to wonder at seeing the huge iron shafts and arms endowed with life and motion. After a while the engineer discovered that the natives had solved the whole difficulty of the nature and principles of the engine:—the boiler contained an English spirit, and when a fire was made beneath, and he roasted, he would not go to work until he called *duhagei* (mercy) through the safety-valve. He would then go to work, but he had to be well supplied with water to quench his thirst. The engineer found that this belief was useful to himself, for he impressed it upon the mind of the fireman that if he did not supply the spirit with plenty of water, he would surely break loose and kill everybody within his reach.

The steam engine, the steamboat and locomotive are now in Hindostan, and the Hindoo has learned to attribute their movements to physical causes. The steam engine is the iron apostle of civilization; he does not dispute but he preaches with irresistible force and never fails to conquer.

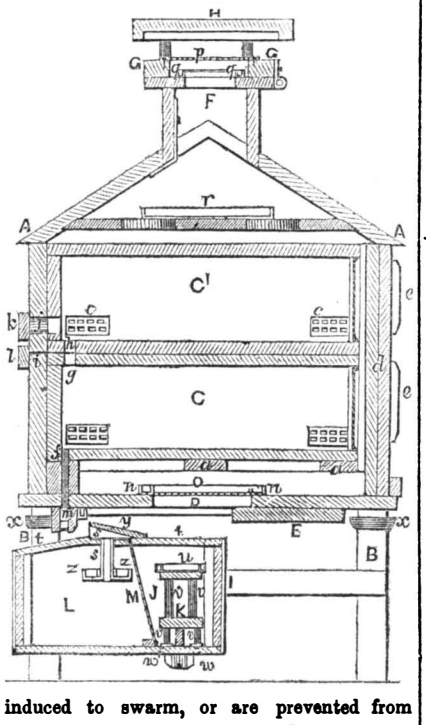
SURLES' PATENT BEE HIVE.---Fig. 1.



The accompanying engravings represent an improvement on Bee Hives, for which a patent was granted on the 18th of last March, to Mr. Albert J. Surles, of Florence, Stewart Co., Ga.

Figure 1 is an elevation; figure 2 is a transverse section. The same letters refer to like parts. The improvement consists in the arrangement of drawers in which the bees collect within the hive, by which efficient ventilation is afforded. The opening and closing of the entrances to and communication between the said drawers are so controlled as to prevent the ingress or egress from certain compartments of the bees, whereby they may be

FIG. 2.



induced to swarm, or are prevented from swarming, as may be desired. There are also improvements in the construction and arrangement of the insect traps, for more efficiently preventing the entrance of flies, moths, &c. It is termed "The Fortified Swarming or Non-Swarming Bee Hive." A is the outer case; one side consists of two doors, *d d*, opening in the middle, so as to throw open the entire side. B B are supporting posts. The floor is slanting; *a a* is a floor of slats placed at a short distance from the bottom hive; C C and C′ C′ are the drawers; they are sufficiently large to contain about 35 gallons. The lower drawers rest on the floor, *a a*; the upper ones rest on the lower ones; each pair is kept at the distance of about two inches from the end of the hive and other drawers by cleats, each drawer has openings, *c c*, on each side near the bottom, covered with ventilators of perforated sheet metal or wire gauze; the meshes are just fine enough to prevent the escape of the bee. The ends of the drawers opposite the doors, *d d*, have glass windows, and the doors have shutters, *e e*, which can be removed to examine the drawers. Each lower drawer, C, has an aperture, *f*, which is the entrance for the bees; *g* is another aperture at the top communicating with an aperture, *h*, in the bottom of drawer C′. The communications between these apertures may be stopped by a metal plate, *i*, which slides in through a slot in the side of the hive. There is a separate entrance to the upper drawer, C′, through apertures, *j j j*, at one end near the bottom; these apertures are opposite to others in the side; they may be closed by a strip of wood, K, secured by screws to the outside of the hive; a piece leather or india rubber may be employed under it to make the joint close; *l* is a similar strip of wood to cover the slots in which the plates, *i*, are inserted; *m* are a series of apertures at the bottom of the hive; they are opposite to and corresponding in length and width with the apertures in the bottoms of the drawers, C C; the mouths of these apertures project a few inches below the bottom of the hive. The back of the space under the floor, *a*, is closed so as not to allow any entrance of the bees into any part of the hive except the drawers. D D are openings in the bottom of the lower floor of the hive, for admitting air. They may be closed, or their width regulated by shutters, E E. These openings have muslin or fine wire gauze, O O, stretched across to exclude insects; *n n* are troughs filled with oil and placed around to entrap other insects that may enter. F is a ventilator similar to a chimney and placed on the roof of the hive; its opening is protected by a hinged lid, G, having a wire gauze or muslin diaphram, *p*, to exclude insects. H is a cover to keep out rain, snow, &c.; *q* is an oil trough to catch small insects; *r* is a similar oil trough placed upon a shelf above the drawers. I is a trap for decoying and catching flies, moths, &c.; it is an oblong box hung below the hive; the entrance, S, is behind the entrance to the hive, and has a cover of sufficient width above it to prevent the entrance of the bees; the box is divided into two apartments, J and L, by a diaphagm, M, of muslin or fine wire gauze; the part, J, has a shelf, K, within it, upon which is placed some honey comb; *u* is an oil trough above the shelf; *v v* are legs to support the trough and shelf; *w w* are small oil troughs around the feet to catch insects, such as ants, &c.; the entrance into this compartment has a suspended oil trough, *z*, and there are oil troughs around the posts, B B of the hive.

A sufficient quantity of air may be supplied to the drawers by the apertures, D D, at the bottom of the hive, without having the entrance for the bees larger than is necessary to allow them to pass after the press of their harvest. The ventilators, *c c*, may be partly closed by wood or metal slides when necessary; they are all placed near the bottoms of the drawers to prevent the air passing upwards through the drawers to injure the young brood. Every joint of the hive is air-tight. The outside of the hive may be covered with canvas and painted.

It is well known that bees will not swarm if allowed plenty of room in a hive; by means of the slide, *i*, between the top and bottom drawers, the bees can be prevented from entering into the top drawers; by this means they can be confined to the lower drawers and induced to swarm. While the entrance to the top drawer is free, and there is plenty of room—a large space—they will not swarm. It is stated that when there is a great number in a large space, they will not swarm, but will keep at a certain strength or number; the space required, says the patent, will vary according to the pasturage where the bees are kept. The apertures from the outside to the upper apartment are intended to be open only during the busy and early part of the season (April, May, and June,) and before the enemies of the bees commence their depredations.

The arrangement of the trap, I, is such as to induce the flies, &c., to enter it in preference to the entrances, *m m*, of the hive, as they will be attracted by the perfume of the honey comb placed in the apartment, J. As soon as they enter the part, L, they are unable to ascend and return by the trough *w*; they therefore die there. The combs placed in the trap will last a whole season, and then serve to make wax.

More information may be obtained of the inventor and patentee by letter addressed as above mentioned.

Enthusiasm for Science.

Mr. Gibbs, says the New Haven Palladium, who founded the magnificent cabinet of minerals at Yale College, was once travelling in a stage coach in the northern part of Vermont. On the mantel-piece of a tavern where he stopped he observed some fine crystals; being informed that they were collected in the neighboring mountains, he ordered his baggage to be taken out, and, obtaining a guide, he went in search of the place where the crystal had been found. He soon collected a number of interesting specimens, and for a period of three weeks employed three or four workmen in knocking the rocks to pieces. His money was soon exhausted, and finally he began to dispose of his clothes in payment for his debts One day a passenger in the coach, being acquainted with Mr. Gibbs, shook hands with him, and mutual expressions of kindness were passed. Observing this, the landlord took the stranger aside and informed him that his friend, Mr. Gibbs, was insane: he had been employing men for nearly a month in battering stones to bits, and if he had any friendship for the gentleman he ought certainly to inform his family of his condition!

Cretinism has been discovered in Somersetshire. In the land-locked village of Chiselebrough, with 400 inhabitants, there are four-and-twenty of these dwarfed, swollen idiotic victims of mental and bodily disease.

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New Inventions.

Improvement in Grist Mills.

Mr. M. Millard, of Lake Mills, Jefferson, Co., Wisconsin, has invented and taken measures to secure a patent for improvements in grist and other like mills, which consist in an improved method of hanging and forming the driving attachment of the mill stone, by causing the stone to be balanced on a pin or roller which sustains the stone by a cross-bar, carrying the stone at its central opening, whereby it is made to sit in a transverse groove cut in the upper end of the lower shaft, the said groove being bisected at right angles by a similar one for the reception of the cross-bar referred to. An upper shaft has projections which fit into the groove carrying the balance pin, which serve, by a screw at the top, to depress the stone and guage it to its proper grinding distance with respect to the lower stone. The lower shaft is capable of receiving a slightly vertical motion—being supported by a spring at the bottom—the whole effect of which is to render the stone adjustable to the utmost nicety. The mode of hanging the stone is also claimed to be an improvement in respect to obviating some friction in the present modes of hanging.

Russell's Improvement in Chimney Caps.

Mr. Charles W. Russell of Washington City, D. C., has invented and taken measures to secure a patent for a very valuable improvement in Caps for Chimneys, the object of which is to protect the chimney or flue—irrespective of the position in which it may be placed with regard to surroundiug objects—against any downward current of air, and to make any current or gust of air, entering the cap, produce a vacuum, thus tending to give the smoke an upward motion, effectually preventing any back draught. The construction of this chimney cap is very different from any other that has come under our notice. Mr. Russell is the inventor and patentee of the "Centripetal Fire Place" for preventing chimneys from smoking, and which was patented on the 5th March, last year. The merits of this invention have been spoken of in the highest terms of praise, and his present improvements in chimney caps are no less worthy of commendation.

Improvement in Sugar Apparatus.

Mr. Eugene Duchamp, of Macon, Bibb Co., Ga., has invented and taken measures to secure a patent for a very valuable improvement in the manufacture of sugar. The lost heat from the boiler of the steam engine on the plantation is carried along and made to assist directly in the boiling of the sugar syrup. Heated air is also forced into the syrup or boiling liquid, while, at the same time, a current of heated air is made to produce a draught above the syrup boilers for the purpose of carrying off the vapor and inducing it to escape. The apparatus is constructed and arranged to economise fuel and labor, and as a substitute for the expensive vacuum pan.

Pernot's Machine for Cutting Screw Blanks.

Mr. Hypolite Pernot, of New York city, has taken measures to secure a patent for an improvement in machinery for cutting screw blanks and other similar shaped bodies, which improvement consists in causing the wire or rod out of which the blank is to be made to revolve, and its one end made to pass through guide bushes attached to a slide, to which are attached two cutters, the one for turning the shank and head of the blank, and the other is operated by a lever for tapering the point, finishing the upper surface of the head and cutting the blank to its proper length, guages being set to regulate the length.

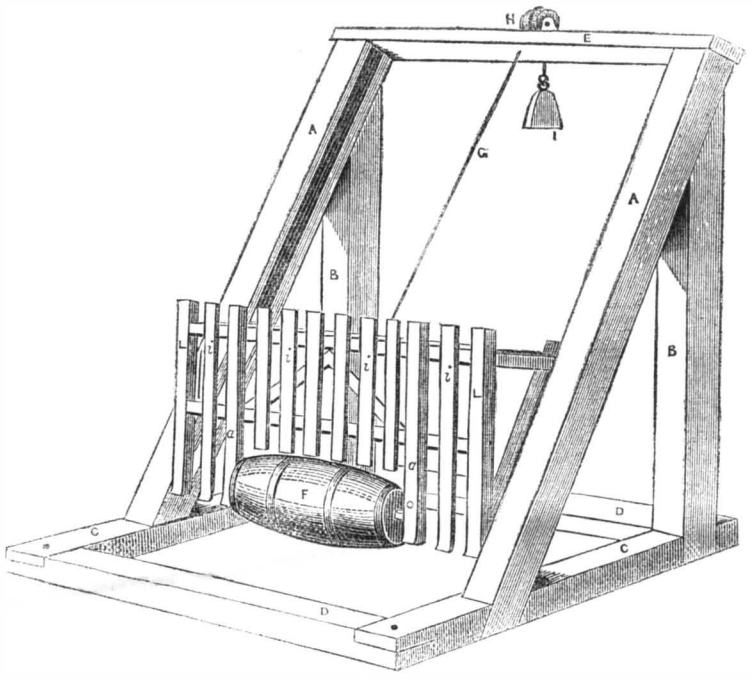
Improved Fastening for Bedsteads.

Mr. Levi R. Barnes, of Berlin, Hartford Co., Conn., has applied for a patent for a new fastening for bedsteads, for the purpose of firmly securing the rails to the posts in a superior manner. The rails are attached to the posts by means of a circular metal disc, having two flanches, each bevelled at one end and attached to the posts. These fit into metal colletts on the rails, which colletts are bevelled in a contrary direction, and they have flanges, so that the posts and rails lock together in the most simple and snug manner by just one turn of each rail. A thumb catch binds the fastening together so that they cannot get apart without being, as it were, unlocked. This is a very superior fastening to the wooden screw, and will, no doubt, supersede it.

New Ballast for Ships.

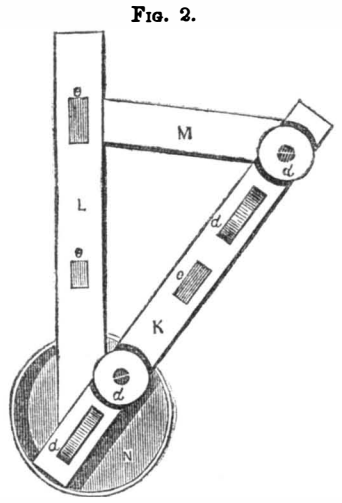
It often happens that a vessel has to sail from one port to another without cargo, and in that case the vessel has to be ballasted with something or other, whether it be old iron or gravel. A method has been introduced into one of the New Castle vessels, at the suggestion of a Dr. White, which appears to be an excellent plan. The system is a tier of waterproof bags along each side of the keel, inside, and one or two forward and aft. These are filled with water, which can be easily pumped out again. There can be very little loss of time either in receiving or discharging such ballast, and there is no expense in getting as much of it as is required, for every vessel carries it below her bottom.

PATENT FLOOD-GATE FOR FENCES.---Figure 1.



The accompanying engravings represent improvements in Flood Gates for fences, invented by Mr. S. D. Hopkins, of Brooksville, Va., and for which a patent was granted on the 20th day of November, 1849. Figure 1 is a perspective view of the inclined flood gate, and figure 2 is an end view of the frame work inside of the inclined posts, A, twelve inches square with a groove cut on the inside of each, two inches deep and three wide. These posts and their braces, B, are lapped and pinned to mud sills, C, which are lapped and pinned across mud sills, D. The posts are confined at the top by a cross-beam, E. Through the ends and whole length of the barrel, F, there passes a shaft of wood two inches square; an iron gudgeon three-quarters of an inch thick, is driven into each end of the shaft, which goes into holes of the same size made in the

FIG. 2.



barrel supporters (*a*). The paling, *i*, is nailed to cross rails morticed in the end pieces of the frame work, as indicated by *c*, figure 2. To the centre of the frame work a rope or chain, G, is fastened, passing through the beam, E, over a pulley, H; to the end of this rope a weight. I, is attached. K, figure 2, represents the sliders which work in the grooves of the posts, and are made to work without friction by means of rollers, *d*, two of which, in each slider, are made to work freely against either side of the grooves in the posts, and two against the bottom of the groove so as to prevent the sliders from touching anywhere in the groove. These sliders are kept to their places by cross rails mortised into them, as indicated by *e*, fig. 2. The end pieces, L, of the frame work are mortised into the slider at the lower end and supported at the top by a brace, M. N, fig. 2, represents the end of the barrel.

The above described flood-gate is placed in a stream or creek where a fence is intended to cross, the mud sills being buried in the ground at the bottom of the creek. The whole of the frame work to which the barrel is attached is put in motion by the rising and falling of the stream. Trees with projecting roots and limbs, together with drifting matter, pass through without obstruction or injury to the works, the barrel always remaining and revolving on the top of the water.

CLAIM.—"I claim the combination of all the parts with the frame work above described, so combined and applied as to produce the self-working flood-gate described.

More information about rights, &c., may be obtained by letter addressed to Mr. Hopkins.

Cloth Dressing Machine.

The Scientific American, of this week, has an engraving of Dickey's patent Clothes Drying Frame, for which it says a patent was granted to Mr. J. C. Dickey, of Washington city, in June, 1851. We think the American would do well to inform Mr. Dickey, that he is behind the times. "*His*" new patent Clothes Dryer was invented by an ingenious mechanic in this county, and hundreds of them hav been in use, hereabouts, for the last three years.

[The above is from the "Spy," Worcester, Mass. We think we understand the point better than our cotemporary, and if he will refer te Mr. Dickey's claim, on page 310, Vol. 6, he will notice that the claim is not for a "Clothes Dryer," as an original invention but for an improved method of raising the arms for collecting the articles to be dryed. We have seen several of those invented by the "ingenious mechanic referred to, and beg to assure the "Spy" that Mr. Dickey has claimed nothing belonging to him.

New Fire Alarm.

Mr. Lyman Perrigo, of Groton, Tompkins Co., N. Y., has taken measures to secure a patent for a self-acting fire alarm, consisting of an inflammmable cord suitably hung throughout a building, and connected with an alarm—such as a gong or bell—situated on the outside or inside, in such a manner that, by a fire taking place within the building, the cord will be consumed and the catch of the alarm set free, whereby it will commence ringing and give loud and early warning of the danger.

The Centrifugal Force Philosophers and the New Motive Power.

On page 341 while commenting on this *reductio ad absurdum*, we made use of this expression, "those who have honestly believed there was something in this alledged discovery, have been led into error," &c. We now withdraw this expression, *honestly believed*. In last Monday's Tribune, Philosopher Andrews publishes an article, in which he takes occasion to assail the Editor of the Scientific American. Personally we would not mind the man at all, as his writings display his ignorance and egotism; but, at the same time they are full of craft and no candor. We accepted the premises of this man, on page 363 of the Scientific American, and completely exposed his profound ignorance. His article in the Tribune contains insinuations: he complains that we scissored his article; we did, but *not* a single idea bearing truly on the question under discussion, was left out—not one. We cut out some appeals to our *candor and generosity*, but having no generosity for "Kidd Bubbles," we pitched his appeals to the dogs. The centrifugal-force schemers feel that the public have confidence in what we have said; our clear and candid expose stands in the way of their purposes. We have a duty to perform to the public in exposing such speculations, and we care not for individuals. In twelve months from this date the public will thank us for what we have done. For a complete expose of the falsity of this alleged discovery we refer our readers to pages 309, 341, 363, this volume of our paper.

We have been informed that an association is formed in this city to carry out this scheme of *tremendous force*, and a tremendous forcible scheme it is. It is proposed to issue certificates of shares at $40 each, for 20,000 horse-powers; each horse power to be sold for $40, $10 of which is to go to the patentees (that are to be) leaving $30 on the horse-power in the hands of the holders of the certificates, as profits. These certificates are issued to the said purchasers on the payment of 30 cents on the horse-power, or one per cent on the profits. If the 20,000 shares are sold for 30 cents advance, it will amount to $6,000. We warn the public against embarking in any scheme to *gain power* by what is termed centrifugal force. We have received unmitigated abuse for performing our duty, but we can stand more of it; we abide the result, conscious that those who are selfishly engaged against us, will yet receive their just rewards. In the mean time let us present the names of those concerned in this affair: Sawyer & Gwinne, inventors; Stephen Pearl Andrews, retained counsellor; H. L. Stewart—anything. There may be a few more, such as Mr. Starbuck, agent, &c. A caucus is held every day at No. 300 Broadway. The only invention we see about this new motive power—this tremendous force—is a new way to make gold out of brass; no working machine is yet built, nor dare they build one and put it alongside of a steam engine to test its value.

A New Railway Brake.

The National Intelligencer states that Don Marcial Arias Carbajal, a young Spainard, has deposited at the Patent Office the plan of a mechanism which he has invented, and to which the name of Brakes *a la Marcialina*, or the application of steam to the Brakes, and which enables the engineer to close them when necessary from his place. To the part of the mechanism fixed to the locomotive and moved by its steam, he has given the name of Marcialina. It is calculated to regulate its action in whatever position the cars may find themselves. It appears that he conceived this idea upon the Pennsylvania Railroad, where he has been running engines.

[This is only a new improvement we suppose. A brake operated by steam is not new. Robert Stephenson, C. E., invented one about four years ago. It was patented in England, since which time we have not heard a word about it.

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Scientific American

NEW YORK, AUGUST 16, 1851.

Mock Auctions and Inventions.

In this city there are a great number of shops in which, day after day, may be heard the voice of the auctioneer "going—going—gone, for only ten dollars—worth thirty," or perhaps a hundred. These places bear the not very beautiful epithet of Peter Funk shops. They are man-traps for strangers; and a short time ago, our Mayor had boys going through the streets carrying placards on which were inscribed "Strangers, Beware of Mock Auctions." These shops look respectable, and there are always a number of persons around the auctioneer, all zealously intent on making money by bidding hard. These men are what are termed "stool pigeons," or decoys to allure the unwary stranger. Many a stranger goes in and bids off a gold watch, or whatever it may be, for fifteen or twenty dollars, vainly imagining he has made a bargain, when in reality the watch is not worth fifty cents.

There are various kinds of these "Peter Funks," (we dislike to use the term, but a sense of duty compels us to do so), but our business is with those who are connected with "pretended inventions and patented improvements." It is quite common for persons to travel round the country selling patent receipts for this, that, and the other thing, deceiving people with the name, *patent*, when they have no patent whatever. It is also not very uncommon to find a lot of men associated together for the purpose of selling out rights of some grand discovery or invention which is to turn the world upside down, and make a fortune to every shareholder in the scheme. The invention is always going to be patented, until the bubble bursts. All such speculating schemes have their "stool pigeons," men of no moral character, but gifted with a prodigal quantity of assurance. Such characters are quite abundant, and in this city, and in others, we suppose, they can be purchased in any quantity for one dollar a-day and roast beef. When detected in their evil practices, and their designs exposed, they are voluminous in bad language and personal abuse; but having no character to lose, respectable people pass them by, rightly judging that sooner or later their evil acts will bring them to punishment. It is the duty of every honest editor to warn the public against pretended, deceptive inventions, whether he may suffer calumny for it or no; he should be armed so strong in honesty as to let all threats and revilings pass him by as the idle wind. This course we have endeavored to pursue, and will always do so, for "honesty is the best policy" after all. We reprobate all such deceptive schemes, and the wicked conduct of all papers and parties engaged in them. They have injured, and do deeply injure, honest and *bona fide* inventors and patentees. So many people have been cheated and deceived by such schemes, that, in some districts, the only way to bring discredit upon a good improvement, (unless the patent seal is there to prove it) is to say *it is patented*, or, *it is a new and great discovery*. As the defenders of the rights and titles of true inventors and patentees, we lift our warning voice against all mock patented receipts, &c., and all mock discoveries. We have also a duty to perform to the public respecting such wicked schemes. A great many of the readers of the Scientific American are not inventors nor patentees, but they take an interest in the progress of science and art, and many of them conduct manufacturing operations. We say to them, no patent is granted but for something new, and the inference is that an improvement is embraced, as every application has to be made for "*a new and useful improvement*,"—grand unpatented discoveries should be looked upon obliquely, and classed with "Mock Auctions."

Dr. Gilbert, of New Orleans, whose success as a curer of cancer we have noticed in the Scientific American, informs us by telegraph that he shall arrive in this city on the 20th of this month.

Short Conversations on Mechanics---No. 2.

Q. "Last week you explained satisfactorily the distiction between statics and dynamics, but in explaining what the science of 'Mechanics' related to, you did not explain what a *force* was, although you said 'the science treated of the forces by which bodies may be made to act upon one another.' I would like to know what a *force* is."

A. Of the actual nature of forces we are very ignorant; we know of their existence by the effects they produce; it is, however, the province of the scientific mechanician to know where the forces, with which he has to do, come from or reside—what kind they are—their principles of action, or, as the chemist would say, "how they behave themselves." Whatever tends to change the actual state of a body in respect to rest or motion, is denominated a *force* in mechanics.

Q. "Well, then, where do the forces come from or reside, with which the engineer or mechanic has to do: I mean the motive forces?"

A. From various sources; but first let me say, there are two forces which cover the whole ground in mechanics: these are attraction and repulsion. The former is exemplified by the attraction of bodies on our globe to its centre, such as a water-fall, and is called *gravity;* the latter by steam and gunpowder.

Q. "Do these cover the whole ground? Are there no other forces of attraction but gravity, and none others of repulsion but steam and gunpowder?"

A. By no means: magnetism exhibits both attractive and repellant forces, and so does every molecule of matter when considered chemically; but, as I said before, it is rather the province of the mechanician to know what the forces are with which he has to do, &c.—mind the distinction.

Q. "If we are ignorant of the actual nature of force, how can we understand the principles of its action and the laws which govern it?"

A. There is much truth in what you say, and in answering you I will explain the difference between the scientific and unscientific mechanician. We can only gain a knowledge of forces by experiment and observation, and I wish you never to forget the distinction between *why* a thing does so, and *it does* so. For example, an electro-magnet attracts a piece of iron and holds it firmly; we know this, but *why* it does so we cannot tell. We know that heat expands water to about 1800 times its natural bulk, but *why* it does so, we cannot tell. The difference between an enlightened and an unenlightened man, in respect to these forces, lies in this—an ignorant man, seeing a piece of iron attracted by an electro-magnet, would attribute the phenomena to magic, or perhaps a force inherent in the electro-magnet; whereas the enlightened man knows the magazine of force to be the battery. (This electro-magnet is very different from the loadstone—it is only a piece of soft iron, and exhibits attractive force only while the wire that surrounds it is connected with the battery, by the electric circuit.) And in respect to the steam engine, the first time an ignorant man saw one in motion, he would believe there were some animals cunningly concealed somewhere about it to give the beams and shafts motion; the enlightened man, on the contrary, knows the steam boiler to be the magazine of force, and the steam itself to be *the force*, and not a spirit, as was supposed by the ignorant Hindo, the first time he saw a steam engine; but no man, however debased with ignorance, if sane, would believe that a walking-beam or wheel could move itself, or generate a force. The mute rocks teach the lowest savage this philosophical truth: he knows that inorganic bodies do not possess a moving or dynamic force in themselves, and cannot, therefore, impart it to others.

Q. "I now understand you; the scientific man, when he sees a machine in motion, knows what gives it motion (the force) and all the *known* laws which govern it—the ignorant man does not."

A. That is it exactly.

Q. "I should also have known, by the weight and spring of the clock which you explained last week, that no machine had any inherent force to move itself; but you have now gone a step farther, and I am taught that when I see an inorganic body in motion—any machine, stone or bullet—that it or they have received motion out of themselves."

A. That is it precisely; and I will cite a few axioms for you to store up in your mind,—the bases of all disquisitions on mechanical action. 1st. A body once at rest will remain eternally at rest, unless it be put in motion by some external cause. 2nd. A body once in motion will preserve it eternally in the same direction, and with the same velocity; or will proceed with a uniform motion in a straight line, unless it is disturbed by some external cause. In these two propositions consists the whole science of motion called mechanics.

Q. "I now understand more about the different kinds of forces, their sources, &c., but I should like to know something more about the laws which govern them."

American Wines.

By the Western Horticultural Review, an excellent magazine, published in Cincinnati, we learn that the American Wine Growers Association met there on the 5th of last month, and a committee presented a very excellent report on the "Falsification of Wines." It states that many liquids are brought into market, labelled "pure wire, not adulterated" "not fermented," "ladies' wine," "Victoria wine," &c.; these cannot be called wines, *not having been fermented*. The only means to check fermentation are heat, cold, alcohol, acids, strong alkalies, or caustic earths, or acrid essential oils. The effect of heat or cold is only temporary. One kind, the report says, seemed to have been a liquid boiled down to concentrate the sugar, to which brandy was added. Another, labelled "not adulterated," contained a great quantity of sulphuric acid, and these liquors were dedicated "to ladies." It seems, then, that the labelled "non-adulterated," is generally the very worst adulterated. We must say, however, that it is a compliment to the fair sex, to dedicate it to them, for old birds cannot be cheated with chaff. The most of the wines received in Cincinnati are made of old wine mixed with sugar and brandy. In a medical point of view, the American Catawba wine is to be ranked as the first, with the mild pure spirituous wines to which those of Germany and a part of the French belong. If the Catawba wine is kept for three or four years before it is brought into market, it ranks and compares with any of the European wines.

Braithwaite's Retrospect of Practical Medicine and Surgery.

Scarlet Fever.—Mr. Daniel Adee, No. 107 Fulton street, this city, has just republished part the twenty-third of this excellent work. It embraces a retrospect of the past six months' practice, from January to July (1851). This is one of the most useful works in the world—it is not only positively essential to every practising physican and surgeon, but to many others besides. Dr. Gardner has a paper in it respecting the treatment of scarlet fever with belladona, in which he says that he has not yet met with a fatal case in treating with it. He administers the belladona according to the ability of the patient, in doses of half a grain to a whole grain, every three or four hours. He does not allow delirium to deter him from giving the medicine. The diet he recommends is bread and milk. Dr. Green, of Peckham, England, corroborates this, and says he has used it for ten years successfully. His doses to persons above puberty is one-sixth of a grain in mint water, every four hours; for infants, very minute doses are given, and these with caution. Dr. Bennett, of Gateshead, states that after ammonia, mineral acids, and the application of nitrate of silver had all failed, in treating malignant scarlet fever, he found that one or two tablespoonsful of fresh yeast, frequently given, was quickly efficacious as an antiseptic and stimulant. This work is full of all such practical information.

Bartlett's Elements of Natural Philosophy--Mechanics.

This work is published by A. S. Barnes & Co., John street, this city, and from the fame of the author, and his position, being that of Professor of Natural and Experimental Philosophy at West Point, its character for completeness and profundity might have been anticipated. We are more than proud of such a work being produced in our country; it is both an honor to its author, his publishers, and our country; and it is a solid acquisition to science. It treats of all the different branches of the mechanics of solids—such as the Forces, Motions, Velocities, &c., illustrating the different problems with figures admirably adapted to present the truths of this science to the mind with perspicuous force. This is the crowning feature of the work. There is as much difference between authors of works on philosophy, as there is between historians:—some are so dull their works cannot be read; others so cloudy they cannot be understood: it is not the case with this work. The mechanical powers, such as the lever, &c., are ably treated, and there is a most excellent chapter for the practical man, on friction bearings and unguents. The "Mechanics of Fluids," Part 2 is an extensive treatise. The egotistical tyros in science who ascribe the action of the syphon to statics, will here find their false philosophy sadly at fault. Hydrodynamics is a difficult subject to treat satisfactorily to the practical man, because we have something yet to learn by experiment and observation. The known and fixed laws of hydrostatics, however, are clearly and ably set forth in this work.

The Alleged New Motive Power.

"The Scientific American and other papers in the city have published an alleged new motive power, with illustrations, attempting to show that centrifugal force may be derived from 'static pressure,' or, in other words, that a sort of perpetual motion may be obtained by a peculiar arrangement of machinery, merely by 'static pressure' being applied to the accumulation of force; which, it is contended, is a principle never before discovered or understood."—N. Y. Farmer and Mechanic.

[The above is untrue in language, and exhibits a dishonest spirit. The Scientific American did the very reverse of what is alleged above against it, as is well known to the F. & M. It pointed out the absurdity of this new alleged power, and demonstrated clearly its defects and how it conflicted with the well-known laws of mechanics. On the 10th of July the Farmer & Mechanic published a communication about this new Motive Power, in which it is stated, "If any one can point out the fallacy hidden in the calculations, he will confer a favor on the supposed inventor by so doing." The F. & M. did not add a word of comment—thus acknowledging that its five Editors and Associate Editors were not qualified to do so. Since we have shown the calculations to be absurdities, all the little dogs, Tray, Blanche, &c., begin to bark.

Patent Case.

In the U. S. Circuit Court, Judge Woodbury Presiding, the jury in the case of Colt vs. Mass. Arms Co., for infringement of a patent, have returned a verdict for the plaintiff, by which the real damages, amounting to about $5,000, will be settled between the parties hereafter, there being a written agreement between the parties, that the verdict, whichever way it might go, should only be a nominal one.—Worcester Transcript.

[This is for the infringement of Colt's patent for Repeating Fire Arms. We were told that the case had been put off. This case has tested the validity of the patent, and according to rule, we suppose, injunctions will be granted before trial on other complaints.

American and London Hats.

Citizen Genin, the hero of having purchased the high priced ticket at Jenny Lind's first concert, a man of energy, taste and grand impulses, challenges the whole of the hatters in London to produce a specimen of a hat equal to the one he will manufacture. He proposes the decision to be left to an impartial jury and the stakes to be handsome, and devoted to some charitable purpose. We have no doubt but Genin will come off with flying colors, if his challenge is accepted—but we suspect the affair will never come off.

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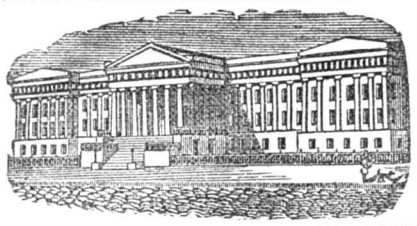

☞ Reported expressly for the Scientific American, from the Patent Office Records. Patentees will find it for their interest to have their inventions illustrated in the Scientific American, as it has by far a larger circulation than any other journal of its class in America, and is the only source to which the public are accustomed to refer for the latest improvements. No charge is made except for the execution of the engravings, which belong to the patentee after publication.

LIST OF PATENT CLAIMS
Issued from the United States Patent Office.
FOR THE WEEK ENDING AUGUST 5, 1851.

To Wm. Graham, of Carlisle, Pa., for improvement in tight Joint for Tuyeres.

I claim the combination of the inner and outer beads on the top plate, between which is placed clay or other plastic material, and the grooves in the edges of the sides of the tuyere for the purpose of making an air-tight joint, the whole being secured by bolts with a projection on them catching over a cam cast on flanges on the under plate, as herein described.

To Luther Brown, of Canandaigua, N. Y., for improvement in Brick Machines.

I claim the arrangement of the apparatus for moving the moulds and the pressing apparatus, all constructed substantially as described, and worked by the revolving shaft in the manner and for the purposes set forth.

To A. B. Childs, of Rochester, N. Y., for improvement in Grain Winnowers and Harvesters.

I claim the elevator, constructed substantially as set forth, with oblique plates or blocks to support the straw and facilitate the separation of the grain.

I also claim the arched grating in connection with a blast to effect the separation of the lighter impurities from the grain.

I also claim the arrangement substantially as described, of the air-chamber between the fans, the suction pipe to supply the chamber with air, and the spout to conduct the once winnowed grain from the screen into the lower extremity of the suction pipe, to be winnowed a second time by the entering current of air, whereby the grain is subjected to the full force of two independent blasts acting consecutively, which ensures its effectual winnowing, as set forth.

To James Dane, Darius Healy & Gary Cumings, of Derby, Vt., (assignors to Isaac & Francis Dane), for improvement in Brick Machines. Ante-dated June 17, 1851.

First, we claim the arrangement of mechanism substantially as described, viz., the toothed wheel and the cams operated by the changing gear or the equivalent thereof, connected with the mill so as to be moved alternately back and forth, for the purpose of operating the mould carriage and the pressing piston, substantially in the manner set forth.

Second, we also claim the adjustable rod or its equivalent, connected with a piston rod for the purpose of acting upon the catch lever or its equivalent, so as to disengage the weight or its equivalent, by which the operating machinery is thrown out of gear for the purpose of arresting the pressing motion as soon as the piston has been depressed far enough to fill the moulds.

Third, the circular projection, or its equivalent, upon the wheel to throw it out of gear and stop the moulding apparatus while the grinding proceeds.

To Moore Holden, of Lawrenceburg, Ind., for improvement in Dressing Millstones.

I claim the dress given to millstones according to the definite and fixed rule described.

I also claim diminishing the draft of the runner and increasing the number of the quarters in comparison with that given the bed stone for the purpose of giving the furrows of each stone as determined by the rule laid down in the specifications, a shears motion upon each other.

To A. H. Judd, of Marinetown, Ill., for improved Water-level Indicator for Steam Boilers.

I claim connecting the ordinary float placed within a steam boiler with an index placed on the outside of the same, through the medium of the valve of a gauge-cock, by which I am enabled to removed any impurities which may at any time hinder the effective action of the float substantially as set forth.

To James Root, of Cincinnati, Ohio, for improvement in Shutters for Shop Fronts.

I claim the sliding shutter, substantially as described, the door by which it is fastened, and which permits it to slide back.

To Charles Wetterstedt, of Marseilles, France, (assignor to Charles Keenan, of New York, N. Y., for improvement in Metallic Alloy Paints. Patented in England, Nov., 3, 1846.

I claim making paints out of metallic antimony, whether prepared separately or combined with other metals to form alloys suitable for making paints, substantially as set forth.

Second, I also claim combining antimonial alloys with oxide of copper to constitute with the painting vehicles herein specified, the exterior coating for ships' bottoms for the purpose of more effectually defending them against the adhesion of shells and weeds, substantially as set forth.

To J. C. Treat, of East Hartford, Ct., for improvement in Hot-Air Furnaces.

I claim the employment of a flue or chamber, having a valve and apertures, in combination with an internal flue, constructed and operating substantially as shown and described, for the purposes set forth.

To G. H. Thatcher, of Albany, N. Y., for improvement in Quadrant Hinged Grates.

I claim suspending the quadrant grate by pivots projecting from the ends thereof near the centre of the circle of the grate, in such a manner that when it shall be desired to discharge the contents from the grate, its rear and lower portion will be made to recede from the back wall, and rise in the throat of the chimney, and thus the contents will be discharged into the rear portion of the fire place, and the dust carried directly up the chimney, and the grate moving outward, and having to drag through the accumulated coal, ashes, &c., in the fire place, as described.

I also claim the combination of the guard plate with the quadrant gate, said guard gate plate projecting from the back of the fire-place horizontally above the lower rear edge of the grate, and vertically within the ends of the same, for the double purpose of forming a support of the fire brick, or back of the grate, and protecting the inner edges of the bottom and ends of the grate, and preventing it from being opened by the lumps of coal that would otherwise fall between its edges and back wall and force the grate open, as described.

To G. J. Wardwell, of Hanover, Me., for improvement in Shuttle Motions of Looms.

I claim operating the picker staff or staves by a cam or cams, upon a shaft hung in bearings attached to the lay and carrying a ratchet wheel which receives motion at suitable intervals through an arm worked by the same motion which operates the lay, substantially in the manner described.

To G. W. Yerby, of Washington, D. C., for improvement in machines for taking Ayes and Noes.

I claim the peculiar form and action of the springs which carry the pencil by which a draw mark is made without risk of breaking the point.

To John Akrill, of Williamsburgh, N. Y., for improvement in working clay for pottery and other ware.

I claim the application of heat to clay during the process of mixing, working or tempering the clay so that it is raised to a heat at or about the boiling point of water at the time of moulding or forming the same, substantially as described.

To John Johnson, of Troy, N. Y., (assignor to Elias Johnson), for improvement in Looms for weaving Pile Fabrics.

I do not limit myself to the special construction and arrangement of parts herein specified, as these may be varied without changing the principle or mode of operation.

I claim the employment, on one or both sides of the loom, of two carriers, to which the figuring wires are secured, and two guides, substantially as described, and operated alternately, the said carriers having a motion towards and from the selvedge of the cloth, to draw out and insert the wires, and together with the guides, a motion towards and from the lay, to carry the wires from the woven pile to the open shed and back, as described.

And I also claim, in combination, giving to the guides a vertical movement, after the wire has been drawn out to admit of their passing each other, substantially as specified.

To Wm. H. Akins & J. D. Felthousen, of Ithaca, N. Y., for improvement in Sewing Machines.

We claim, first, the combination and arrangement of the pitman driving bar, shuttle, and adjustable set screw, for the purpose of allowing the pitman a continuous motion, whilst the shuttle bar and shuttle are momentarily stopped to allow the needle to draw up the stich, as herein described.

Second, we claim bringing up the needle with a sudden jerk, after the stich is formed, for the purpose of tightening up the stitch, after the manner of hand sewing, and adjusting the same to any thickness of material to be sewn.

To M. C. Bryant. of Lowell, Mass., for improvement in Looms for weaving Cut Pile Fabrics.

I claim, first, the use in looms of a finger or shield which shall be introduced between the warps for the purpose of bringing the warp threads at the edge of the cloth in such a position that the filling yarn will be drawn in to form a smooth selvedge, substantially as described.

Second, the use of hooks formed on the intersecting plates or their equivalents, which shall hold the filling thread from returning towards the reed, substantially as described.

To Isaac Gregg, of Pittsburg, Pa., for improvement in Brick Machines.

I claim the placing the auxiliary pressure roller, or its equivalent, between the main roller and the knife, for the purpose of subjecting the surplus clay, after it is elevated above the tops of the moulds, to the action of pressure before removing the same by the said knife, substantially as set forth.

I also claim the subjecting the upper surface of the clay, in each mould, to a rubbing pressure, by means of a plate or its equivalent, placed above the tops of the moulds, in combination with some mechanical device for forcing up the movable bottom of the said moulds whilst passing under the said plate, substantially in the manner and for the purpose set forth.

To G. P. Gordon, of New York, N. Y., for improvement in Printing Presses.

I claim, first, giving to the platen a revolving reciprocating motion, which enables it to assume the two positions of receiving the sheet, and the impression alternately, when operated by the cam, sectional arm, and its own segment, geared with the segment of the sectional arm, by giving to it the movement described of an arc of the circle, when traversing from one of these positions to the other.

Second, I claim affixing the vibrating bed on its own axis, so that it may recede into the proper position, for receiving the inking rollers for inking the form, and become perpendicular and directly face to face with the platen, when the toggle is straight, for the purpose of giving the impression.

Third, I claim the arrangement of two side arms, so combined as to form a frame to hold and carry the inking rollers, and giving to them the motion both forward and backward over the form, for each impression, during the rest of the other parts, whether the same be done in this precise manner or an equivalent, to produce a like result.

Fourth, I claim the grooved cam-shaped arms or guides, or their equivalent, for the purpose of carrying the frisket in the right direction, and holding it in the desired positions during the intervals of rest given to the platen, that is, opening it to relieve the printed sheet, and holding it open to lay the succeeding sheet; and closing it firmly against the platen, to grip the sheet, and holding it closed until the bed has moved forward, given the impression and receded to its original position.

Fifth, I claim the combination of the bed vibrating on its own axis with the roller frame composed of two arms, substantially as described and set forth.

To O. H. Bush, of Fall River, Mass., for improved Spring Bolt.

I claim the combination of the lever with the spring bolt and its case, so as to operate therewith, substantially as set forth.

The Animal Kingdom.

Sir Charles Lyell, in his Principles of Geology, offers some excellent observations on points in reference to the animal kingdom. He says:—

"The modifications in the systems of which man is the instrument, do not, in all probability, constitute so great a deviation from analogy as we usually imagine; we often, for example, form an exaggerated estimate of the extent of the power displayed by man in extirpating some of the inferior animals, and causing others to multiply; a power which is circumscribed within certain limits, and which in all likelihood, is by no means exclusively exerted by our species. The growth of human population cannot take place without diminishing the numbers, or causing the entire destruction of many animals. The larger carnivorous species give way before us, but other quadrupeds of smaller size, and innumerable birds, insects, and plants, which are inimical to our interests, increase in spite of us, some attacking our food, others our raiment and persons, and others interfering with our agricultural and horticultural labors. We force the ox and horse to labor for our advantage, and we deprive the bee of his store; but, on the other hand, we raise the rich harvest with the sweat of our brow, and behold it devoured by myriads of insects, and we are often as incapable of arresting their depredations, as of staying the shock of an earthquake, or the course of a stream of burning lava. The changes caused by other species, as they gradually diffuse themselves over the globe, are inferior probably in magnitude, but are yet extremely analogous to those which we occasion. The lion, for example, and the migratory locust, must necessarily, when they first made their way into districts now occupied by them, have committed immense havoc amongst the animals and plants which became their prey. They may have caused many species to diminish, perhaps wholly to disappear; but they must also have enabled some others greatly to augment in number, by removing the natural enemies by which they had previously been kept down.

A great philosopher has observed that we can only command nature by obeying her laws, and this principle is true, even in regard to astonishing changes which are superinduced in the qualities of certain animals and plants by domestication and garden culture. We can only effect such surprising alterations by assisting the development of certain instincts, or by availing ourselves of that mysterious law of their organization, by which individual peculiarities are transmissible from one generation to another. * * * *— The distinctness, however, of the human from all other species, considered merely as an efficient cause in the physical world, is real, for we stand in a relation to contemporary species of animals, and plants, widely different from that which other irrational animals can ever be supposed to have held to each other. We modify their instincts, relative numbers and geographical distribution in a manner superior in degree, and in some respects very different in kind, from that in which any other species can affect the rest."

A gutta percha tube has been placed in a colliery in Wales, having a shaft 400 feet deep, whereby a whisper either from bottom or top is instantly heard; a whistle calls attention, and then follows the message. A great source of mischief will be thus abolished by this safe and expeditious mode of communication.

M. Muller has discovered at Paris some lost MSS. of Origen, making the last seven books of a heretofore incomplete work; it is a refutation of heresies, by proving that the heretics took their opinions from the ancient philosophers. The MSS. are said to throw great light upon the opinions and practices of the New Platonists, and the manners and customs of antiquity.

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TO CORRESPONDENTS.

N. U. P., of N. Y.—The oscillating cylinder engine can be built cheaper than any rotary we have ever seen; it is also more simple; of this you are not aware, but it is really so. The mode of moving your arms or pistons is different from what we have seen in any other rotary. We hope you will consider the subject well before you go to any great expense. We are not favorably inclined to it; this opinion will be received, no doubt, with the disinterested spirit in which it is given.

J. E. F., of N. S.—If it were possible we would give the price of the machines we publish, but we cannot always do this, as the persons who own them expect to be addressed by letter, owing to some enquiries being always made before purchasing. We do not know the price of Dick's Press, but we believe it will answer for hay, oil, and fish; it perhaps would be about $350.

A. B. G., of Texas.—We have drawings of Bain's Electric Clock, but we cannot afford time to take and send you a diagram.

L. A. B., of N. Y.—No patent could be obtained for making a house of hexagonal or any other form. The proposition you submit could not be reduced to a patentable subject, and you are advised not to attempt it.

J C., of Mass.—Bourne says, "upon well formed railways, with carriages of good construction, the average tractive force required for low speeds is about 7 1-2 lbs. per ton, or one three-hundredths of the load, though, in some experimental cases, where particular care was taken to obtain a favorable result, the tractive force has been reduced as low as one five-hundredths of the load. This you may take as an answer to your question.

J. E., of Ohio.—Yours of the 30th ult., enclosing $30 for one Alcott Lathe, is received: it will be forwarded immediately.

C. H. R., of Me.—Your sketch of an improved rock drill has been examined: we believe it possesses novelty of a patentable character; of its value we cannot speak. A patent would cost between $50 and $60.

J. E. A., of Ct.—We do not think any patent could be obtained upon your modifications of the chain-pump. The change seems to be merely in the mechanical construction, and could not be called an invention. We wrote you to Mansfield about the other matter, the "Centre" was omitted.

S. T. B., of N. Y.—We have seen a press constructed upon the same plan as you submit. You cannot obtain a patent.

I. A., of Pa.—The model which you furnished us will answer the requirements of the Patent Office perfectly, and we will retain it until we hear from you again.

J. S., of Mass.—Your case is being re-examined, and as soon as the second decision is given we will lose no time in advising you.

E. A. D., of Me.—We have examined the description you send of the boiler: it is not new—the same plan was invented by Mr. Hoard, of this State, several months since.

A. D., of Mass.—The contrivance you name in yours of the 7th, has been examined, the first claim you present is believed to possess novelty sufficient to warrant an application for a patent.

A. E. D., of Ky.—The "Builder" is published in London. There is no publication issued regularly in this country relating to your profession. We should be happy to have served you with copies. The Sci. Am. will be sent you regularly.

S. R., of Me.—We do not know of any such machine as you refer to.

A. B. E., of Va.—When a patent is refused by the Commissioner, the applicant can have remedy by an appeal to the Chief Justice of the District Court of the United States for the District of Columbia; notice must be given to the Commissioner of such intention and $25 paid to the credit of the patent fund.

R. I., of N. H.—The model is only required to show what is new and what is claimed—nothing must be omitted to show this clearly. We have had communications from others, previous to yours, about making the stones run in opposite directions.

H. S., of N. Y.—For various reasons, as you perhaps have been able to judge, we have been unable to publish yours.

B. M. H., of ———.—We know of nothing into which the old shoe leather parings could be economically manufactured. We know of no person at present who is acquainted with making starch, who wishes to engage in the business, but if we discover any one, we shall be happy to comply with your request.

J. S & Co., of Ohio.—The glass gauge, you know, is in common use, and, with the exception of the four cocks in yours, it is the same; this is all the difference so as to make the steam pass through the glass downwards, or the water upwards, as you desire. We do not see where we could well base a claim, although the indicator is a good one.

J. W. D., of Phila.—The modifications of gas burners are numerous. The common argand we like best. The first diagram of yours is the same as some conical faucets for water, and could not be patented. The second figure represents a new arrangement to us, but surely it is more expensive than the common plans in use. We think it is good, however.

C. W., of Tenn.—Your arrangement of the parallel motion is somewhat different from others, but we suppose the principles of its production are pretty well understood: Sir Isaac Newton pointed them out long before they were applied to the steam engine, but to Watt belongs the credit of this application.

W. O. S., of ———.—You must be content with the rules which we shall publish for estimating the horse-power of your wheels—we cannot afford time to make such calculations.

J, H., of Ala.—We have received your letter, and will state that air-tight draught boxes for the wheels have been long known. If you will examine page 280, this volume of the Scientific American, you will find a wheel of the same description as yours, only it is hung on a horizontal shaft: it is our opinion that you will not be able to secure a patent.

Money received on account of Patent Office business since August 5:

J. R., of R. I., $30; C. T., of N. Y., $55; A. P. K., of N. Y., $50; H. A. L., of N. Y., $10; S. I., of N. Y., $20; T. H. G., of N. Y., $25; A. N., of Va. $60; R. M., of S. C., $40.

W. R., of Mass.; C. W. R., of D. C.; C. B., of O; J. S. of N. Y.; E. C., of Me.—Your cases have been filed into the Patent Office since last week's issue of the Scientific American.

Persons who are so kind as to forward unpaid letters, stating that certain patented inventions are not new, will please discontinue their favors in future. The operation is rather too cool for this weather. We can't stand it.

Back Numbers and Volumes.

In reply to many interrogatories as to what back numbers and volumes of the Scientific American can be furnished, we make the following statement:

Of Volumes 1, 2, and 3—none.

Of Volume 4, about 20 Nos., price 50 cts.

Of Volume 5, all, price, in sheets, $2; bound, $2,75.

Of Volume 6, all back Nos., at subscription price

New Edition of the Patent Laws.

We have just issued another edition of the American Patent Laws, which was delayed until after the adjournment of the last Congress, on account of an expected modification in them. The pamphlet contains not only the laws but all information touching the rules and regulations of the Patent Office We hall continue to furnish them for 12 1-2 cts. per copy.

Patent Claims.

Persons desiring the claims of any invention which has been patented within fourteen years can obtain a copy by addressing a letter to this office; stating the name of the patentee, and enclosing one dollar as fee for copying.

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Terms of Advertising:

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" 12 lines, 75 cts., " "
" 16 lines, $1,00 " "

Advertisements should not exceed 16 lines, and cuts cannot be inserted in connection with them at any rice.

American and Foreign Patent Agency.

IMPORTANT TO INVENTORS.—The undersigned having for several years been extensively engaged in procuring Letters Patent for new mechanical and chemical inventions, offer their services to inventors upon most reasonable terms. All business entrusted to their charge is strictly confidential. Private consultations are held with inventors at their office from 9 A. M., until 4 P. M. Inventors, however, need not incur the expense of attending in person, as the preliminaries can all be arranged by letter. Models can be sent with safety by express or any other convenient medium. They should not be over 1 foot square in size, if possible.

Having Agents located in the chief cities of Europe, our facilities for obtaining Foreign Patents are unequalled. This branch of our business receives the especial attention of one of the members of the firm, who is prepared to advise with inventors and manufacturers at all times, relating to Foreign Patents. In the item of charges alone, parties having business to transact abroad, will find it for their interest to consult with us, in preference to any other concern.

MUNN & CO., Scientific American Office,
128 Fulton street, New York.

A. B. WILSON'S SEWING MACHINE—We are now selling the rights for territory for this incomparable machine at low rates. We furnish to the parties the best and only practical Sewing Machine—not larger than a lady's work-box—for the trifling sum of $35. Examine for yourselves at 195 and 197 Broadway, room 23, Frankn House Buildings, N. Y. GEO. R. CHITTENDEN, Agent. 48 2*

PROPERTY FOR SALE---In Clinton County, Pa., consisting of 3 1-4 acres of land, with a valuable water privilege, the improvements being 1 two story frame building, 24 by 90 feet, suitable for a factory or shop, and a good dwelling house, stable, &c. For further particulars address G. S. GAKTH, Mill Hall, Clinton Co., Pa. 48 2*

JACK-SCREW FOR RAISING BUILDings, Locomotive Engines, and other heavy bodies, also double and single threaded vice screws, mill screws for raising mill stones, cheese press, carpenter's clamps, and music stool screws, all of which are warranted to be superior articles: manufactured and for sale wholesale and retail by Tolman & Brown, Hinsdale, N. H. "We have examined the screws manufactured by Messrs. Tolman & Brown, and believe them to be of the finest quality, both as regards the workmanship and durability. MUNN & Co." 48 4*

CHICAGO SEED STORE AND AGRICULtural Warehouse.—The undersigned have formed a co-partnership under the name and style of Starkweather & Hooker, for the purpose of establishing a Depot in Chicago for the purchase and sale, on commission or otherwise, of Seeds, Agricultural and Horticultural Implements, Machines, &c., of every description, respectfully solicit the attention of agriculturists and manufacturers of implements, to our establishment, and give assurance that every facility will be offered for ready sales on the most advantageous terms. C. R. STARKWEATHER,
48 4* J. W. HOOKER.

WATTS & BELCHER, Manufacturers of Steam Engines, Lathes, Planing Machines, Power Presses, and Mechanics' Tools of all descriptions: Washington Factory, Newark, N. J. 38 13*

MECHANICS' FAIR.—The Middlesex Mechanic's Association will open their first exhibition for the encouragement of the mechanic arts and manufactures in the city of Lowell, on Tuesday, Sept. 16, 1851. The Committee of Arrangements for this proposed Fair, respectfully invite and solicit all persons engaged in the various branches of mechanism, manufactures, science, and art, to present specimens of their various products for exhibition and premium. Ladies are cordially invited to present specimens of their ingenuity and taste. Premiums will be awarded as the articles presented may merit. Articles for exhibition should be sent on or before Sept. 10th. For more particular information or copies of the circular, address (post-paid) J. A. Beard, Esq., Supt., Lowell, Mass. By order, OLIVER M. WHIPPLE, Chairman.
M. C. BRYANT, Sec'y. 40 10

LEONARD'S MACHINERY DEPOT, 109 Pearl st. 60 Beaver, N. Y.—The subscriber is constantly receiving, and offers for sale, a great variety of articles connected with the mechanical and manufacturing interest, viz., Machinists' Tools—engines and hand lathes, iron planing and vertical drilling machines, cutting engines, slotting machines, bolt cutters, slide rests, universal chucks, &c. Carpenters' Tools—mortising and tennoning machines, wood planing machines, &c. Steam Engines and Boilers, from 5 to 100 horse power. Mill Gearing,—wrought iron shafting, brass and iron castings made to order. Cotton and Woolen Machinery furnished from the best makers. Cotton Gins, hand and power, and power presses. Leather Banding of all widths, made in a superior manner; Manufacturers' Findings of every description. P. A. LEONARD.
33tf.

GREAT REDUCTION IN PRICE.—The most valuable book of the day, containing domestic and medical recipes, rules with regard to the recovery and preservation of health, an account of the different medical theories of the day, useful tables, &c., entitled "THE GRAEFENBERG MANUAL OF HEALTH." It is complete in one volume of seven parts, and is beautifully printed upon fine paper, in a convenient form of 300 pages. The immense success which has attended the sale of previous editions, has warranted a reduction in the price of this (the 7th) edition, from 50 to 25 cts. per copy. Any number of copies, from one upward, will be forwarded upon the receipt of the money, (post-paid). Address THE GRAEFENBERG COMPANY, 214 Broadway, N. Y., or this Office. 38tf

MORTISING MACHINE.—Dear Sirs: I received the Portable Mortising Machine about 3 weeks ago: I have used it, and am very well pleased with it. It is the best plan of a machine of the kind I have ever seen. W. R. McFARLAND.
Nashville, Tenn., June 22, 1851.
The above machines are for sale by MUNN & CO., price $20—boxed and shipped. 42 tf

WANTED.—A situation is wanted by a person capable of planning and constructing furnaces for smelting iron ore, or erecting rolling mills. He is an experienced mechanic, thoroughly conversant with the iron business, and would like a permanent situation in some of the Southern States. Address M. E., Dover, N. J. 45 10*

LAW'S PLANER FOR PLANK, BOARDS, &c., is now attracting much attention on account of its effectiveness, the excellence of its work, its simplicity, and consequent economy. Machines are now in operation in Brooklyn, New York City, and at various points South and West. Rights or machines for sale by H. LAW, 23 Park Row. 45 tf

INDUSTRIAL EXHIBITION.—The "Maryland Institute for the Promotion of the Mechanic Arts," will hold its Fourth Annual Exhibition of American Manufactures, Machinery, &c., in the splendid new Hall, now being finished at Baltimore, from 20th Oct. to 18th Nov. next. Mechanics, manufacturers, and others are cordially invited to deposite specimens of their best productions, in competitions for the Gold and Silver Medals, Diplomas, etc. Steam power, labor, &c., is offered free to despositors. Great care will be taken that fair play shall be shown to all the exhibitors. Those desiring to deposite articles are required to notify the Committee at once, stating the nature of the goods, and the probable amount of room required to display them to advantage. Circulars containing full particulars, rules, &c., with a view of the Institute's New Hall), may be had by addressing the Agent, J. S. Selby, or the undersigned, who will promptly give any other information to those who desire it. See editorial columns of Sci. Am., of Aug. 2, 1851. ADAM DENMEAD,
46 5 Chairman Com. on Ex.

1851 TO 1856—WOODWORTH'S PATENT PLANING, TONGUEING, AND GROOVING MACHINE.—Ninety-six hundredths of all the planed lumber used in our large cities and towns continues to be dressed with Woodworth's Patent Machines. Price of the machines from $150 to $800. For rights in the unoccupied Counties and towns of New York and Northern Pennsylvania, apply to JOHN GIBSON, Planing Mills, Albany, N. Y. 46 4*

MILLWRIGHT AND MACHINIST.—The undersigned begs leave to draw the attention of all who may have occasion to use machinery to his new and extensive arrangements for furnishing Steam Engines and Boilers of various sizes, mill gearing and wrought-iron Shafting; Log, Circular, Veneer, Scroll, and Slitting Saws, and other machinery connected with a manufacturing establishment, upon the most favorable terms at his works, corner Eleventh avenue and West 29th st. THOS. J. WELLS. 46 4*

SCRANTON & PARSHLEY, Tool Builders, New Haven, Conn., have on hand six 12 ft. slide lathes, 28 in. swing; also four 8 ft. do., 21 in. swing, with back and screw gearing, with all the fixtures; one 5 ft. power planer; 12 drill presses, 4 bolt cutting machines, 30 small slide rests; 5 back geared hand lathes, 21 in. swing; 15 do. not geared; 8 do. 17 in. swing on shears 5 1-2 feet; 25 ditto with and without shears, 13 in. swing, counter shafts, all hung if wanted suitable to the lathes. Scroll chucks on hand; also index plates for gear cutting. Cuts of the above can be had by addressing as above, post-paid. 47tf

KELLY & CO., New Brunswick, N. J., Foundry and Machine Shop, manufacturers of Stationary Engines, India Rubber Machinery, Mill Gearing and Stove Castings, &c. Articles made in the machinery line to order with dispatch and in the most wormanlike manner. Parties wanting machinery or castings made will be waited on within any reasonable distance. Orders solicited. 47 12*

MANUFACTURE OF PATENT WIRE Rope and Cables, for inclined planes, suspension bridges, standing rigging, mines, cranes, derick, tillers, &c., by JOHN A. ROEBLING, Civil Engineer, Trenton, N. J. 47 1y*

A CARD.—The undersigned beg leave to draw the attention of architects, engineers, machinists, opticians, watchmakers, jewellers, and manufacturers of all kinds of instruments, to his new and extensive assortment of fine English (Stubs) and Swiss Files and Tools, also his imported and own manufactured Mathematical Drawing Instruments of Swiss and English style, which he offers at very reasonable prices. Orders for any kind of instruments will be promptly executed by F. A. SIBENMANN, Importer of Watchmakers' and Jewellers' Files and Tools, and manufacturer of Mathematical Instruments, 154 Fulton st. 42 3m*

BEARDSLEE'S PATENT PLANING MAchine, for Planing, Tonguing, and Grooving Boards and Plank.—This recently patented machine is now in successful operation at the Machine Shop and Foundry of Messrs. F. & T. Townsend, Albany, N. Y., where it can be seen. It produces work superior to any mode of planing before known. The number of plank or boards fed into it is the only limit to the amount it will plane. For rights to this machine apply to the patentee at the above-named foundry, or at his residence. No. 764 Broadway, Albany. GEO. W. BEARDSLEE. 43tf

TO PAINTERS AND OTHERS.—American Anatomic Drier, Electro Chemical graining colors, Electro Negative gold size, and Chemical Oil Stove Polish. The Drier, improves in quality, by age—is adapted to all kinds of paints, and also to Printers' inks and colors. The above articles are compounded upon known chemical laws, and are submitted to the public without further comment. Manufactured and sold wholesale and retail at 114 John st., New York, and Flushing, L. I., N. Y., by
QUARTERMAN & SON,
48tf Painters and Chemists

MACHINERY.—S. C. HILLS, No. 12 Platt Street, N. Y., dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills Kase's, Von Schmidt's, and other Pumps, Johnson's Shingle machines, Woodworth's, Daniel's and Law's Planing machines Dick's Presses, Punches, and Shears; Mortising and Tennoning Machines, Belting, machinery oil; Beal's patent Cob and Corn Mills; Burr Mill, and Grindstones, Lead and Iron Pipe, &c. Letters to be noticed must be post paid. 38tf

IRON FOUNDERS MATERIALS—viz., fine ground and Bolted Sea Coal, Charcoal, Lehigh, Soapstone, and Black Lead Facing. Iron and brass moulding Sand; Fire Clay, Fire Sand, and Kaolin; also English, Scotch, and Welsh Fire Bricks—plain, arch, circh, circular, and tower cupola, for sale by G. O. ROBERTSON, Liberty Place, between 57 and 59 Liberty st., (near the Post Office), N. Y. 44 12*

RAILROAD CAR MANUFACTORY.---TRACY & FALES, Grove Works, Hartford, Conn. Passage, Freight and all other descriptions of Railroad Cars, as well as Locomotive Tenders, made to order promptly. The above is the largest Car Factory in the Union. In quality of material and in workmanship, beauty and good taste, as well as strength and durability, we are determined our work shall be unsurpassed. JOHN R. TRACY,
39tf. THOMAS J. FALES.

LAP-WELDED WROUGHT IRON TUBES for Tubular Boilers, from 1 1-4 to 7 inches in diameter. The only Tubes of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine, and other Steam Engine Boilers.
THOS. PROSSER & SON, Patentees,
16tf 28 Platt st., New York.

LATHES FOR BROOM HANDLES, Etc. We continue to sell Alcott's Concentric Lathe, which is adapted to turning Windsor Chair Legs, Pillars, Rods and Rounds; Hoe Handles, Fork Handles, and Broom Handles.

This Lathe is capable of turning under two inches diameter, with only the trouble of changing the dies and pattern to the size required. It will turn smooth over swells or depressions of 3-4 to the inch, and work as smoothly as on a straight line, and does excellent work. Sold without frames for the low price of $25—boxed and shipped, with directions for setting up. Address, (post paid) MUNN & CO.,
At this Office.

MONTGOMERY MANUFACTURING CO'S Iron Works, Montgomery Ala. Capital invested, $250,000. Steam Engines and Boilers, Reuben Rich's cast-iron centre vent water wheel and iron scrolls complete (the very best wheel in use), sugar mills, saw and grist mill irons of most approved patterns, iron and brass castings of every variety, &c. Orders promptly executed, and upon terms as favorable as can be secured from the best northern establishments. When required, deliveries made (through their agents) at Mobile or New Orleans. Address GINDRAT & CO., Agents. 42 3m

WANTED IMMEDIATELY---To go South, one smith, two pattern makers, and one finisher, who must not only be good workmen but possess qualifications which belong to gentlemen, they must be temperate, honest, and faithful. To such, permanent employment and good wages will be given. For particulars, address, post-paid, MUNN & CO., at this office immediately. 46, tf

WOOD'S IMPROVED SHINGLE MACHINE—Patented January 8th, 1850, is, without doubt, the most valuable improvement ever made in this branch of labor-saving machinery. It has been thoroughly tested upon all kinds of timber, and so great was the favor in which this machine was held at the last Fair of the American Institute, that an unbought premium was awarded it in preference to any other on exhibition. Persons wishing for rights can address, (post-paid) JAMES D. JOHNSON, Easton, Conn., or Wm. WOOD, Westport, Ct. All letters will be promptly attended to. 37tf

STOP THIEF.---All editers are requested to pass the scoundrel round. The public are cautioned against a pirate who stole the Model of a Match Splint Machine invented and patented by me on the 29th of April, 1851. The said person is trying to sell my machine under secrecy and pretence that it is his own. He being irresponsible and not to be believed, I would advise all to beware of him. I will hold all persons who may purchase the right of this machine from him responsible for the payment. L. L. GILLILAND.
Dayton, O., July 10, 1851. 45 4*

AARON KILBORN, No. 4 Howard street, New Haven, has on hand, and is now finishing, five 14 horse-power engines; price, including boiler and all fixtures, $1200; twelve of from 12 to 6 horse-power, all of the most approved patterns, iron bed frame and pulley balance wheel. Galvanized Chain, and fixtures for chain pumps always on hand and for sale. 45 10*

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Scientific Museum.

The Drying up of the Sea.

There is an interesting discussion in progress, in the National Intelligencer, respecting the progress of the coral formations—reducing the waters of the sea to solid land. W. D. Porter introduced the discussion, and he has been replied to by H. R. Schetterly, our correspondent. Mr. Porter maintains that the ocean has diminished in liquids, by the amount of the solids formed by the zoophites and shell fish, and that the shores and lines of coasts have changed their form in consequence of the subsidence of water caused by this diminution. The zoophites surround the world in a belt, extending 39 degrees from the equator each way. They are constantly forming solids from the liquid ocean. They have already formed sixteen millions of square miles. And liquids when reduced to solids, generally occupy less space. Mr. Porter says:—

Where rolled many millions of waves, now stand many millions of miles of firm rocks, their bases fast to old ocean's sand, their tops peering above old ocean's blue waves.

Mr. Schetterly in reply maintains, that though there is a subsidence of waters, it must be from other causes—the actual quantity of water on the globe has not diminished. He thinks a diminution of the sea, would diminish the amount raised by evaporation, and falling in rain, and would be destructive to vegetable life. This sort of reasoning is not satisfactory against a matter of fact. Should great changes take place on the face of the world, Providence has resources to make one thing balance another. And agencies of which we now have no idea, might come in to do the work of sprinkling the earth, after the sub-marine land-makers had exhausted a considerable portion of the sea. It is evident that the world is yet to subsist a population vastly greater, than it now does; and that God is making room for them. And we read that in the new earth which is to exist after the dissolution and re-construction of this—"*There was no more sea.*"

And there may, for ought we know, be a gradual diminution of the sea, to make way for the vast population which is to fill the world in the millennial state. At least we need not shrink from allowing the actual progress of things towards such a result, to have its weight on our minds, for fear that God cannot spare the wasted waters, or cannot preserve the life and health of the world without them. The earth before the flood appears to have been watered in a different way from what it now is. And it very much limits the resources of Him who made the world, and who set to work the zoophites making its solid land more ample, to assume that he has no other means of watering the solid earth, than to devoting to it so large a proportion of the earth's surface, as is now covered by the sea.—[Puritan Recorder.

[We understand by our worthy cotemporary, that it believes in Mr. Porter's theory and draws from the Bible an argument for the necessity, or rather probability of its correctness, against Mr. Schetterly, that although the waters of the sea and evaporotion were diminished, *Providence has other resources to make one thing balance another.* It throws out the hint that the increase of the earth may be for the vast population of the milleneum, but surely Providence which can make a new way of supplying the earth with moisture, could also find a way to sustain the vast population of the earth with the present extent of dry land. The earth was watered before the flood just as it now is, by evaporation and condensation. Before man was created, it is said there was no rain but *mist*, and from this we would infer against Biblical critics that after man was placed in the Garden before the flood, there came rain,—"showers that ushered in the spring and cheered the thirsty ground." The Books of Moses are profound philosophical works, not false philosophy, and in no case do we find them contradicting sound science. The hypotheses of Mr. Porter, we believe, is founded on very slender data. The seas have no less waters to-day than they had four thousand years ago; they are a constant quantity. It is true that some reefs and islands have coral foundationsbu t if the dry land has made encroachments on the sea in some places, the sea has made encroachments on the dry land in others. Where the cities of the Plain stood, there is now the deep Dead Sea; the waves roll over the walls of ancient Tyre. Where Port Royal stood, the shark sports, and where the quay of Lisbon once lifted up its solid walls, alas they now are fifty fathoms deep below. The sea has been making, year after year, great encroachments on the coast of Norfolk, in England, and where once the large and fine island of Norland stood in the German Ocean, there are only three small islets. In one tempestuous night, the sea buried the most of it beneath its waves.

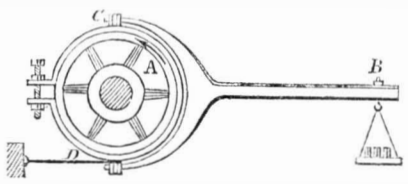
We could cite varieus other instances of the sea's incroachment: England was once united to France, and so was Scotland to Ireland—the evidences of this appear to be beyond cavil. There is one expression in the extract quoted which we cannot pass over, "liquids when reduced to solids generally occupy less space." This is not the case with water, and zoophites cannot raise a foot of coraline rock without taking the material from the sea to build it. They do not make their formations out of nothing, therefore the waters of the sea cannot be growing less, unless the corals have discovered a way to change the very nature of the water itself, convert it from water into their lime formations—a thing impossible. The coral formations increase very slowly. In some of the gaps in the Australian reefs scarcely a perceptible difference has been discovered in their elevation, for fifty years. If there are elevations taking place in one part of the earth, science teaches us that there must be depressions in some other. By the common laws of the Universe, no portions of any kind of matter are growing less—such as the drying up of the sea—by any organic or inorganic action. The sea will never dry up until "the elements shall melt with fervent heat," and when there shall be *no more sea*, there will not be the same kind of inhabitants on the earth, for our bodies are composed of about 81 parts of water.

Hydraulics.

[Continued from page 360.]

MEASURING THE POWER OF WHEELS.—The force applied to propel a wheel is as the quantity of water and the perpendicular height of the fall. Although this force is easily calculated by multiplying the velocity into the weight, yet this will not give the power of a water wheel, for of two wheels driven by the same quantity of water and the same fall, one may perform 20 per cent. more labor. This is owing to the superior construction of the one over the other. The way to test the laboring force of wheels is by a dynometer such as M. Morin's Friction Brake, two kinds of which are here presented.

FIG. 61.



A is a sheave pulley on the wheel shaft; B is a lever secured to it by straps, C D, all tightened by screws. The brake is fastened to some permanent part of the frame or building at D. The weight of the lever and scale must be known. The weights are put into the scales so as to pull it down and slacken the fastening at D, and the wheel is set in motion so as to balance its effective power by the weights, at the end of the lever. If the pulley is 3 feet in diameter and the lever 5 feet long from A to the point B, and if the weight of the lever is 30 lbs. and 75 lbs. on the scale and the wheel making 50 revolutions per minute, the power is $50\times(75+25)\times5\times3\times3\cdot1415\div33{,}000$. In 1836 a work was published in Paris denominated *Experiences sur les Rous Hydrauliques a aubes planes et sur les Rous Hydrauliques a augets*, and from this work our readers will get the equations relating to the force and measure of power. We refer to such works because works on hydronamics are very voluminous.

FIG. 62.

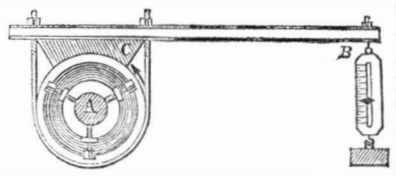


Fig. 62 is another modification of a friction brake. A is a sheave pulley fastened to the wheel shaft by tightening screws and correctly set to run concentrically. A metal strap is fitted round the pulley passing through the lever, B. These screws can tighten the strap as may be desired; C is a metal box (some have used wood) acting opposite to the strap. On the end of the lever is a balance spring firmly secured to some fixed object like the lever, the preceding figure. This brake can be applied to either horizontal or vertical shafts. In the Franklin Journal of 1842 some very interesting information will be obtained from the experiments of Elwood Morris, on testing the power of water wheels.

We shall publish the mode of estimating the power applied to various wheels, next week, after which we will conclude those series of articles, by one or two papers on the philosophy of the Re-action Water Wheel, moving in the same direction as the water that impels it.

Extraordinary Pertrification and other Curiosities.

The steamer St. Ange, Captain Labarge, says the St. Louis Intelligencer, arrived here yesterday from the Yellow Stone, after a voyage of fifty-two days. Capt. L. informs us that for ten years past he has in every successive annual trip observed a remarkable-looking solitary cedar tree standing upon a bleak and elevated point, about fifty miles below the mouth of the Yellow Stone. While coming down, this last trip, he saw that his old acquaintance had fallen to the earth. Curiosity led him to the spot, which was about half a mile from the river, and perhaps 700 feet above its level, when he found, to his surprise, that the tree was in the most perfect state of petrification. Judging from the shortness of the interval since he had seen it standing, it must have been in that condition while standing erect as it had grown. The trunk was about thirty-six inches in diameter A fragment of it is now lying upon our table, and is decidedly the most perfect specimen of ligneous petrification we have ever seen.

Dr. Evens, U. S. Geologist, who came as a passenger on the St. Ange, found near the the same spot, the shoulder-blade of a mastodon, measuring nearly $3\frac{1}{2}$ feet across—also some enormous foot bones of the same animal. Fossil shells, the head of a snake, and other curiosities, were found by Dr. E. in the same locality.

Among the notabilities of the trip was the catching of a beautiful specimen of the Linnet—a bird very rarely seen—by some of the boat hands. Its plumage is beautiful, and the melody of its song is most charming.

Mr. Berthold, who also came on the boat, brought with him the stuffed skin of one of the mammoth mountain sheep of the Yellow Stone region. It stands about as large as an ordinary milch cow, and is indeed a remarkable curiosity.

Captain Labarge brought down some beautiful specimens of the rocks found on Cannon Ball river, whose name is derived from them. They are perfectly spherical, and, without a very close inspection, would pass for real cannon balls anywhere. They are of sizes ranging from that of a common toy marble to the bulk of a half-bushel measure. They are seen in measureless abundance, projecting from the face of the steep banks between which the river runs.

They cultivate the blackberry, in the neighborhood of Boston. An old pasture is broken up, the sprouts are planted in rows in October, and kept clear of weeds, and otherwise treated like raspberries. The Agriculturist says that the fruit thus produced is of a size and flavor which surprises those who are only acquainted with the wild blackberry. Our readers may not all be aware that the American species has a more agreeable flavor than the European. There are also different varieties of the American fruit even in its wild state, from which a selection might be made.

A self-sealing envelope for the ballot-box has been invented at Boston. The Secretary of the Commonwealth of Massachusetts contracted for the immediate manufacture of 1,200,000 self-sealing envelopes, at a cost to the State of $18,000. These envelopes are to be used by the voters of Massachusetts, in carrying into effect the Secret Ballot Law, passed by the last Legislature.

LITERARY NOTICES.

ADDRESS ON CHURCH MUSIC, BY LOWELL MASON.—The name and fame of Lowell Mason, as a teacher of Sacred Music for more than 40 years, imparts to this address more than ordinary interest, not because he has been a teacher, but such a teacher. On tendering his resignation as conductor of music in the Central Church, Boston, he was presented with an elegant and costly silver vase, by the past and present members of his choirs. On that occasion he delivered the Address, which is now published by Mason & Law, of this city, and it contains many most interesting statements to those who take an interest in our Church Music.

THE SCALPEL—A journal of Health, adapted to popular and professional reading, etc.: edited by Edward H. Dixon, M. D., New York. This able quarterly, for August, has splendid contents. The articles upon Cancer, Typhus, Ship, or Jail Fever, the elementary substances of our body, etc., are very able and instructive. This number is embellished with a likeness of Dr. Carnochan of superior artistic excellence. The Editor's "Soda Water Department" is always peculiarly well seasoned, and possesses some of the finest scintillations of sarcasm to be met with. Everybody should read "The Scalpel." $1 per annum; 25 cents per number.

ICONOGRAPHIC ENCYCLOPEDIA.—Part 22 of this useful and beautiful work is now issued and ready for sale by its enterprising publisher, Mr. Rudolph Garrigue, No. 2 Barclay street, this city: it contains 20 plates, some of which contain more than 20 clear and distinct figures and groups of Egyptian, Grecian, and Roman statuary. The letter press pages comprise pages 425 to 500, and treat of Mammalia. In three months more this splendid work will be completed.

DICTIONARY OF MECHANICS AND ENGINE WORK.—No. 36 of this able work, published by D. Appleton & Co., contains articles on the Transit Instrument, Turbine, Turn-tables, Twisting iron, Warming and Ventilation." The article on the Turbine treats exclusively of Fourneyron's, and some other French wheels. It is not satisfactory, inasmuch as the turbine in its improved form, is exclusively of American origin, and not a word is said about this; the information about the turbine, however, is valuable.

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AND
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SIXTH VOLUME OF THE
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The Publishers of the SCIENTIFIC AMERICAN respectfully give notice that the SIXTH VOLUME of this valuable journal, commenced on the 21st of September last. The character of the SCIENTIFIC AMERICAN is too well known throughout the country to require a detailed account of the various subjects discussed through its columns.

It enjoys a more extensive and influential circulation than any other journal of its class in America.

It is published weekly, as heretofore, in *Quarto Form*, on fine paper, affording, at the end of the year, an *ILLUSTRATED ENCYCLOPEDIA*, of over FOUR HUNDRED PAGES, with an Index, and from FIVE to SIX HUNDRED *ORIGINAL ENGRAVINGS*, described by letters of reference; besides a vast amount of practical information concerning the progress of SCIENTIFIC and MECHANICAL IMPROVEMENTS, CHEMISTRY, CIVIL ENGINEERING, MANUFACTURING in its various branches, ARCHITECTURE, MASONRY, BOTANY,—in short, it embraces the entire range of the Arts and Sciences.

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Any person who will send us four subscribers for six months, at our regular rates, shall be entitled to one copy for the same length of time; or we will furnish—

10 copies for 6 mos., $8 | 15 copies for 12 mos., $22
10 " 12 " $15 | 20 " 12 " $25

Southern and Western Money taken at par for subscriptions.

PREMIUM.

Any person sending us three subscribers will be entitled to a copy of the "History of Propellers and Steam Navigation," re-published in book form—having first appeared in a series of articles published in the fifth Volume of the Scientific American. It is one of the most complete works upon the subject ever issued, and contains about ninety engravings—price 75 cents.

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